

PROGRAM TRANSFORMASI SEKOLAH 2025 (TS25)

MODUL 6

Kefahaman melalui Reka Bentuk-KmR



Penggerak Pembelajaran Bermakna

Bahagian Pendidikan Guru
Kementerian Pendidikan Malaysia

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MODUL

(Kefahaman melalui Reka bentuk)

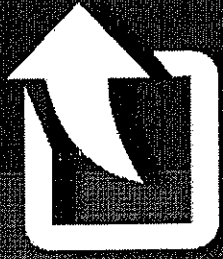


Kefahaman melalui Reka bentuk

... connecting heart and mind to the standard



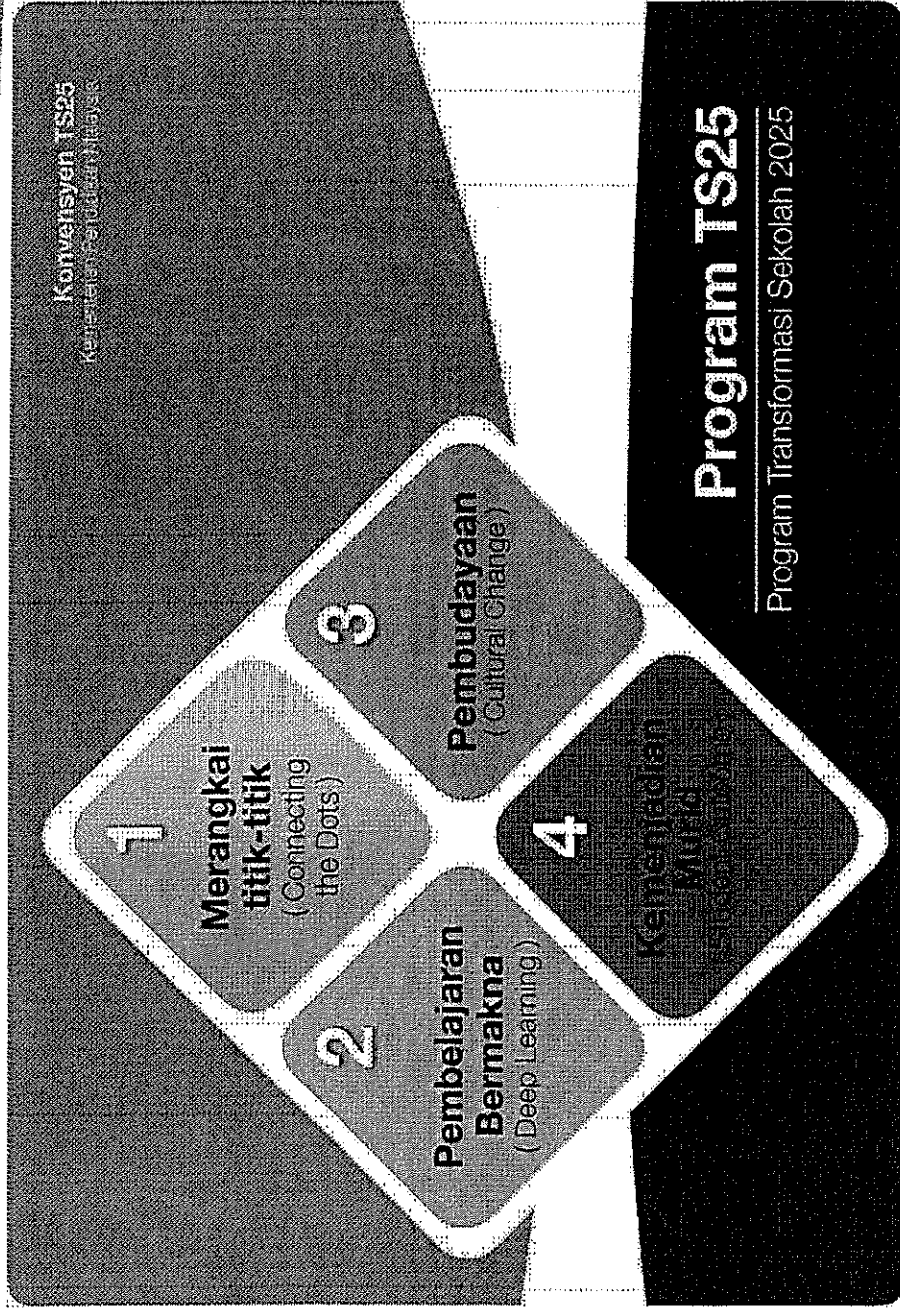
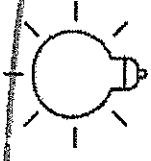
KmR 3.0



Perjalanan Kmr

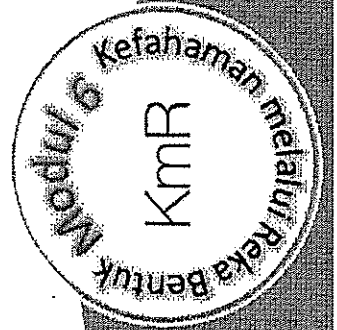
- 2013** **Pembentangan dan permurniaan Konsep Kmr**
Pembentangan kerangka konsep Kmr di pejabat TKPPM, konsep telah diterima dengan saranan permurniaan
- 2014** **Projek Rintis Kmr**
Projek rintis Kmr dijalankan di SK Jijan dan SK LB Jonhson, N. Sembilan
- 2015** **Perluasan Kmr 1.0 di semua daerah N.Sembilan**
Projek Kmr diperluaskan di semua daerah N. Sembilan, sekolah telah dikenal pasti oleh JPN N. Sembilan. Sebanyak 6 sekolah telah terlibat. Hasil showcase terbaik telah dipilih menyertai Karnival Pendidikan di IPG Kampus Pendidikan Teknik.
- 2016** **Pelaksanaan Kmr 1.0 seluruh daerah Port Dickson**
Melibatkan semua sekolah di daerah Port Dickson, guru cemerlang pedagogi dari 62 buah sekolah telah menyertai latihan dan melaksanakan Kmr di sekolah masing-masing.
- 2017** **Kmr 2.0 - Modul 6 TS25 (Kohort 1.0)**
Seramai 496 orang Rakan ELT dan guru dari 99 buah sekolah TS25 Kohort 1.0 dan JPN/PPD telah divedahkan dengan Kmr melalui Modul 6.
- 2018** **Kmr 3.0 - Modul 6 TS25 (Kohort 2.0)**
Melalui Modul 6 TS25, perkongsian Kmr 3.0 memberi fokus kepada pemantapan pembelajaran bermakna dan pelaksanaan Pentaksiran Blik Darjah (PBD)

Asas Pertimbangan



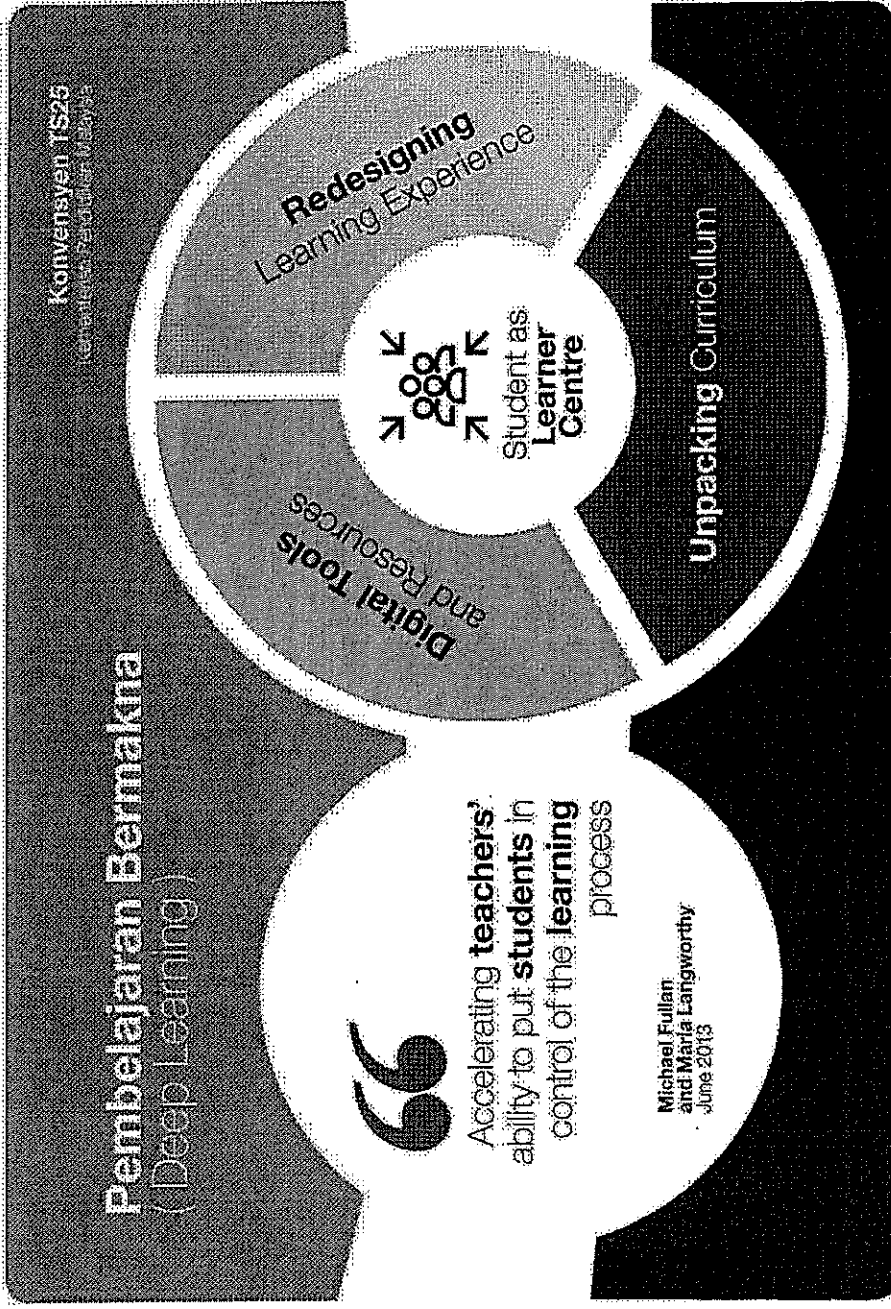
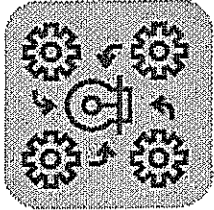
Ekshibit 1

Pembentangan YBhg. Datuk Dr. Amin Bin Senin (Timbalan Ketua Pengarah Pelajaran Malaysia) di Konvensyen Program Transformasi Sekolah 2025 (TS25) pada 19 September 2017 di Hotel Mahkota Melaka dengan bertajuk 'Pengerak Pembelajaran Bermakna'. Beberapa slaid (Ekshibit 1 & 2) tersebut menerangkan konsep Pembelajaran Bermakna atau *Deep Learning*



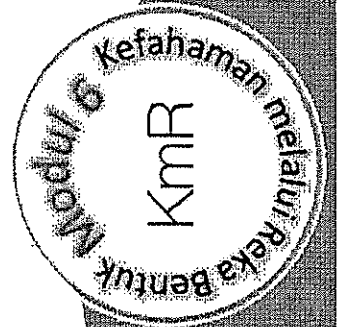
KmR

Asas Pertimbangan

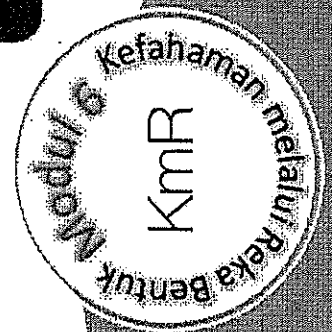
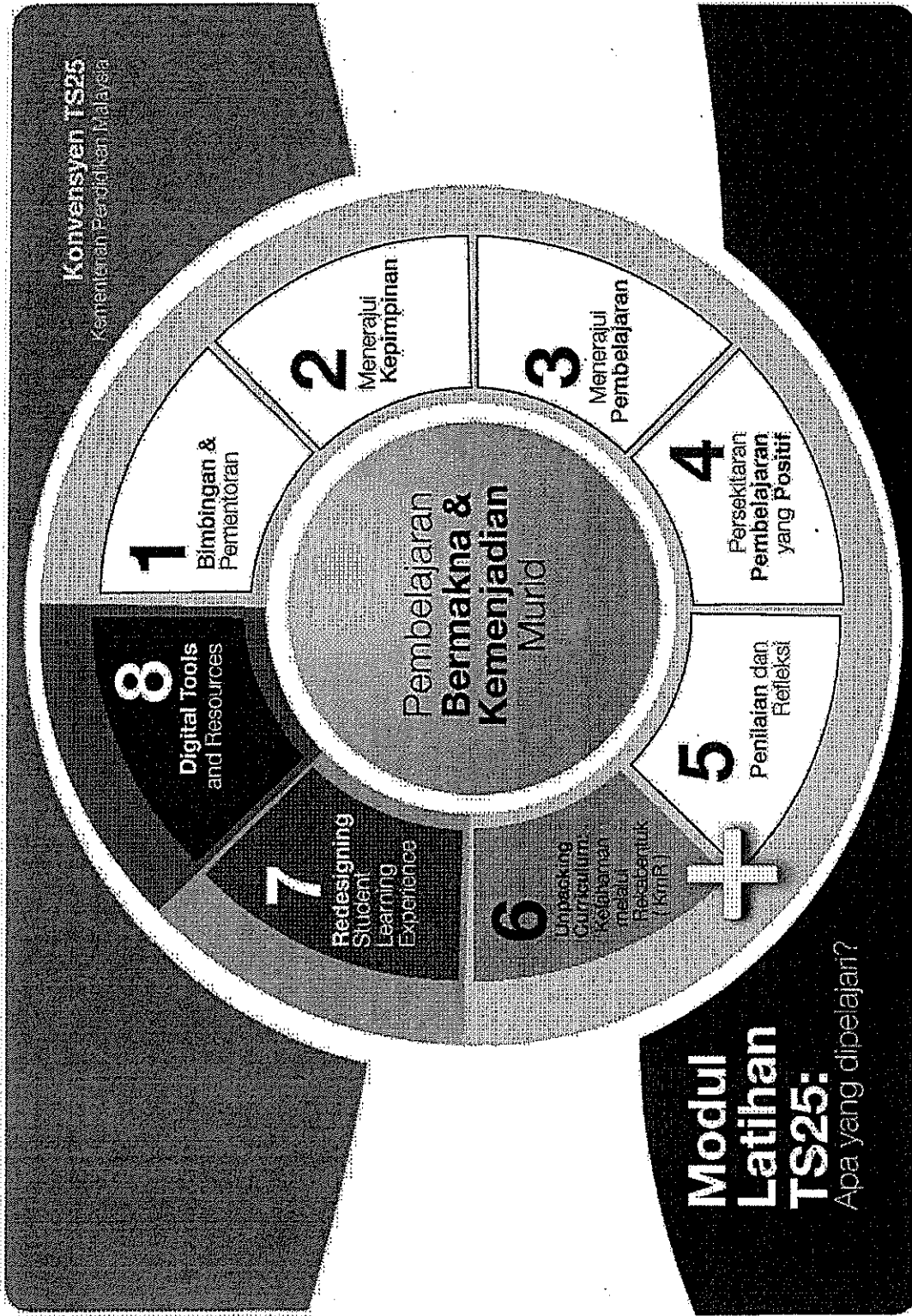


Ekshibit 2

Pembentangan YBhg. Datuk Dr. Amin Bin Senin (Timbalan Ketua Pengarah Pelajaran Malaysia) di Konvensyen Program Transformasi Sekolah 2025 (TS25) pada 19 September 2017 di Hotel Mahkota Melaka dengan bertajuk 'Pengerak Pembelajaran Bermakna'. Beberapa slaid (Ekshibit 1 & 2) tersebut menerangkan konsep Pembelajaran Bermakna atau *Deep Learning*



Kerangka Pelaksanaan PBL Bersepadu

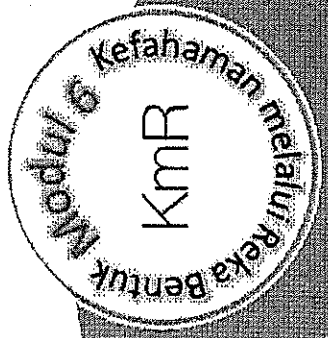


Pembelajaran Bermakna



Menurut Fullan et al. (2017)¹, pedagogi baharu diperlukan untuk menjana pembelajaran bermakna merangkumi ciri-ciri berikut:

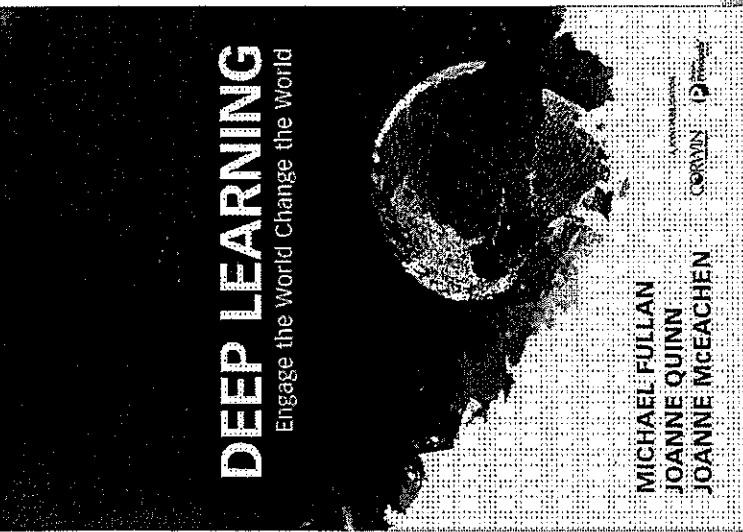
1. Mereka (guru dan murid) memberi tumpuan kepada **penciptaan dan penggunaan pengetahuan baharu di dalam kehidupan sebenar** dan bukannya hanya menyebarkan pengetahuan yang sedia ada.
2. Mereka (guru dan murid) sengaja **menjalin perkongsian pembelajaran baharu di antara dan dalam kalangan pelajar dan guru**, kerana proses pembelajaran menjadi tumpuan utama bagi penemuan, penciptaan, dan penggunaan pengetahuan bersama.
3. Pedagogi baharu **memperluaskan persekitaran pembelajaran dengan bergerak menjauhi bilik darjah tradisional** untuk menggunakan masa, ruang, dan orang di dalam dan di luar bilik darjah sebagai pemangkin untuk membina pengetahuan baharu dan mewujudkan budaya yang kukuh untuk pembelajaran.
4. Pedagogi baharu **memanfaatkan kemudahan digital di mana-mana dan bila-bila masa untuk mempercepat dan memperdalam pembelajaran**. Penggunaan teknologi bukan semata-mata sebagai tempelan atau *end in itself*.



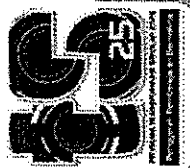
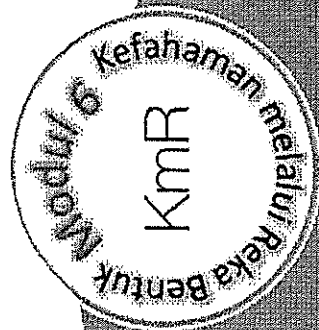
¹ Fullan, M., et al. (2017). *Deep Learning: Engage the World, Change the World*, SAGE Publications



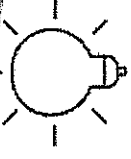
Pembelajaran Bermakna



Deep learning is quality learning that 'sticks' with you for the rest of your life; it increases student engagement through personalization and ownership; it connects students to the 'real world'; it resonates with spiritual values; it builds skills, knowledge, self-confidence, and self-efficacy; it builds new relationships with and between the learner, their teachers, families and communities; and it deepens the human desire to connect with others to do good. In terms of outcomes deep learning focuses on specific global competencies that we call the 6Cs: character, citizenship, collaboration, communication, creativity, and critical thinking.

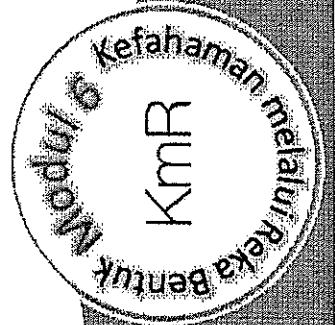


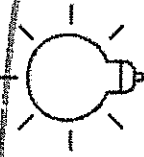
Pembelajaran Bermakna



Deep learning engages students in the mastery of academic content, creation of new knowledge, and development of deep learning competencies, all of which combine in the formation of actions and responses that drive their learning, their lives, and the world forward.

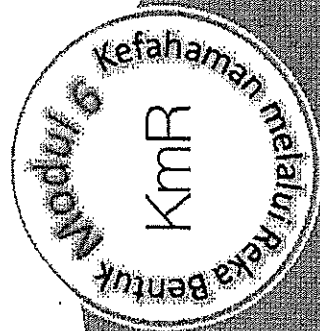
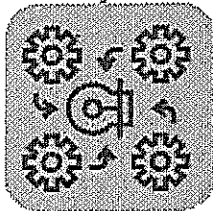
NPDL Global Partnership





**"Deep learning is quality learning that
'sticks' with you for the rest of your
life..."**

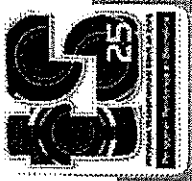
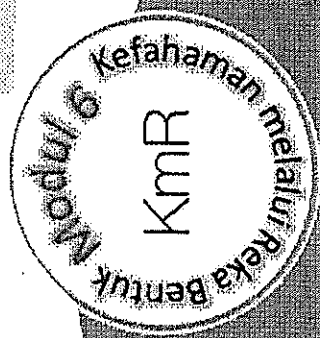
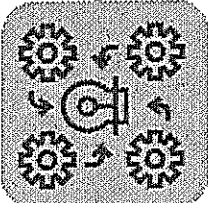
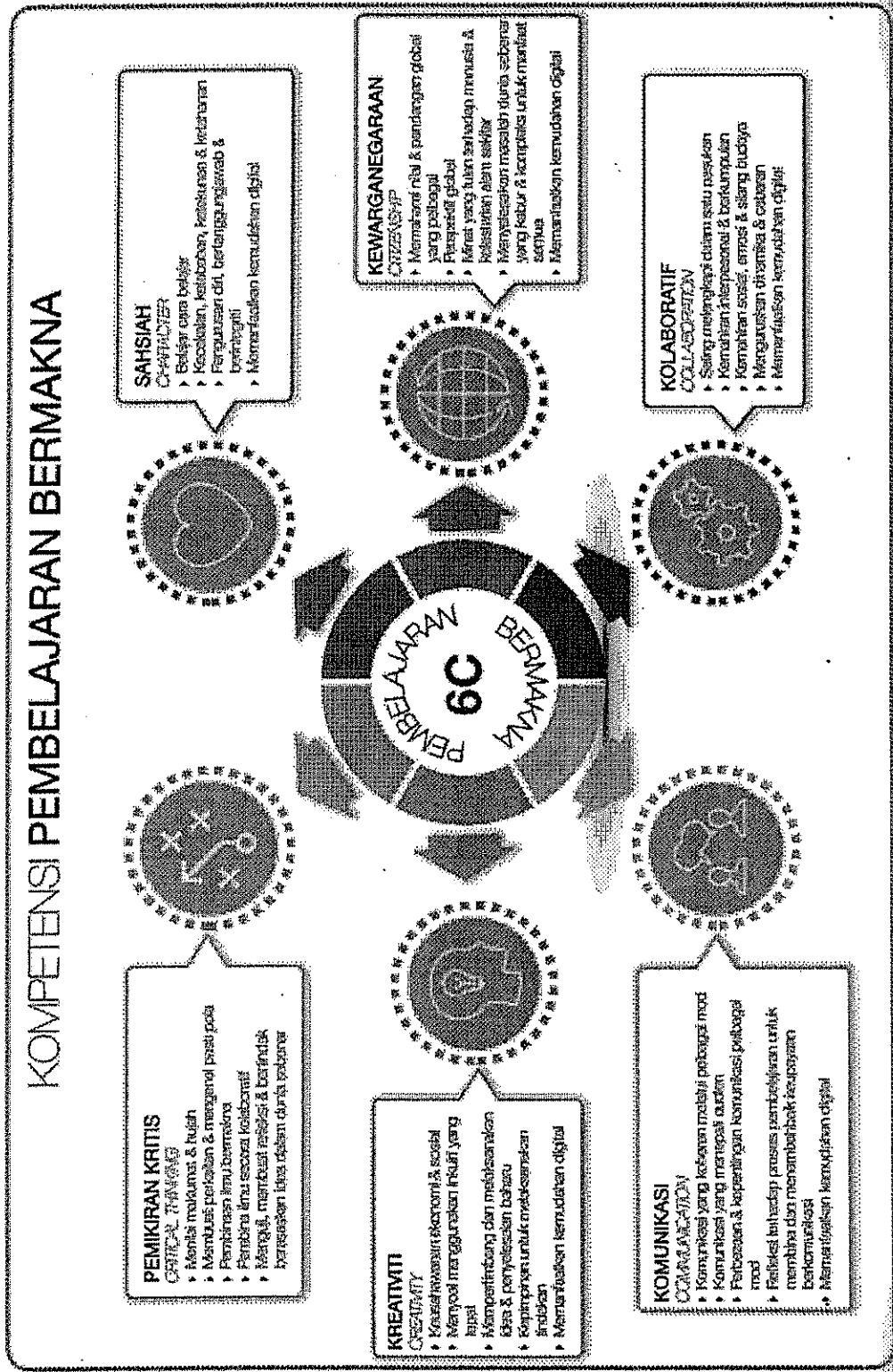
**Michael Fullan, Joanne Quinn & Joanne Ketchen in *Hi Week*
Teacher**

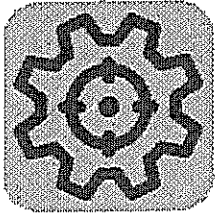


Kompetensi Pembelajaran Bermakna (6C)



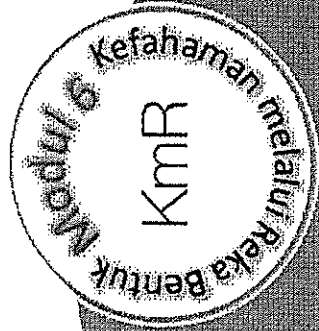
KOMPETENSI PEMBELAJARAN BERMAKNA



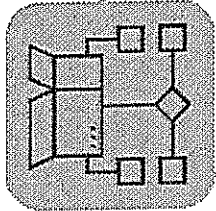


Objektif (Umum)

- Pada akhir sesi peserta dapat;
- ▶ Mengenal pasti elemen utama yang terdapat di dalam kurikulum berasaskan penyataan standard.
 - ▶ Membanding beza amalan perancangan pengajaran sedia ada dengan pendekatan KmR
 - ▶ Menerima pendedahan terhadap amalan PdP dalam pelaksanaan Pentaksiran Bilik Darjah (PBD) dan penerapan Kompetensi Pembelajaran Bermakna (6C).
 - ▶ Mengenal pasti kaedah PdP yang sesuai dengan hasil pembelajaran dan keperluan pelajar untuk penerapan Kompetensi Pembelajaran Bermakna (6C) dan pelaksanaan PBD.
 - ▶ Menyediakan rancangan mengajar berasaskan KmR untuk penerapan Kompetensi Pembelajaran Bermakna (6C) dan pelaksanaan PBD.



Modul Teras (6.1) - Merungklai Standard

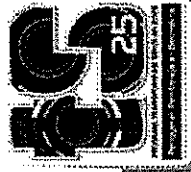
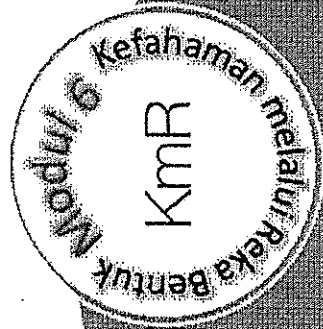
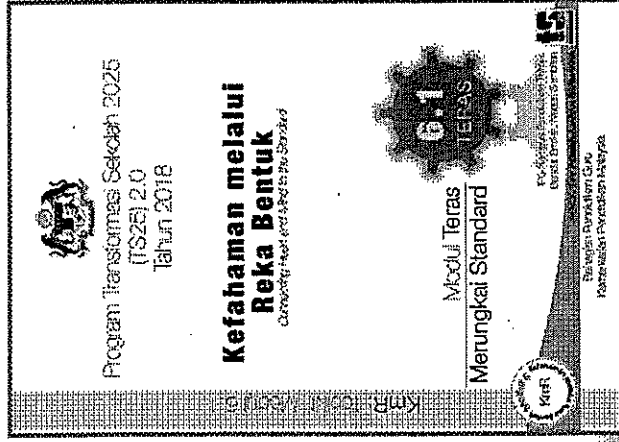


Aktiviti:

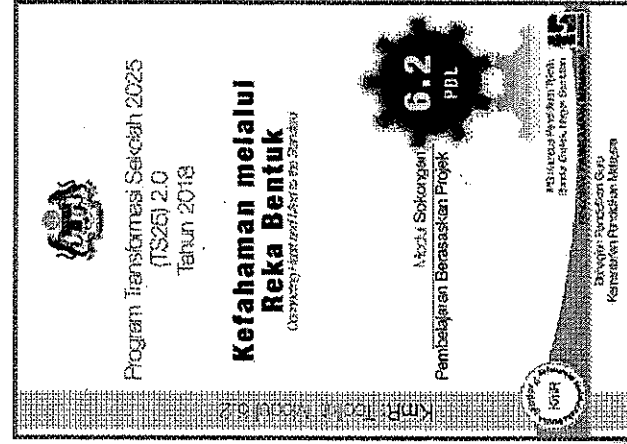
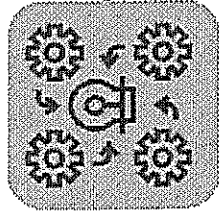
- Aktiviti 1: Kenal pasti *The Big Idea* (TBI)
- Aktiviti 2: Soalan Penting
- Aktiviti 3: Kesedaran Terhadap Amalam P&P
- Aktiviti 4: Kajian Kes 1 (Sistem Pendidikan)
- Aktiviti 5: Kajian Kes 2 (KmR) & Kajian Kes 3 (KmR)
- Aktiviti 6: Merancang Pengajaran (Templat KmR)

Kriteria Kejayaan:

- Anda akan berjaya sekiranya anda:
- ▶ Menyediakan TBI yang mantap yang menghubungkan standard dan mata pelajaran
 - ▶ Membina soalan-soalan penting berasaskan standard.
 - ▶ Merancang P&P melalui pendekatan backward design
 - ▶ Melengkapkan templat P&P berasaskan kerangka KmR



Modul Sokongan - Pengajaran Inovatif (PBL)



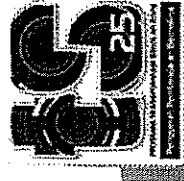
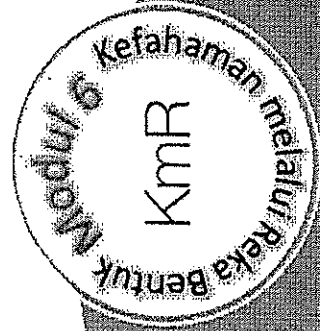
Aktiviti:

- Aktiviti 1 - Pengenalan PBL Bersepadu
- Aktiviti 2 - Menetapkan hala tuju projek dan merangka Soalan Pencetus Idea
- Aktiviti 3 - Merancang Penilaian (Kandungan & Kemahiran)
- Aktiviti 4 - Pemetaan dan Pengurusan Pelaksanaan PBL
- Aktiviti 5 - Melaksanakan Perancangan PBL Secara Bersepadu

Kriteria Kejayaan:

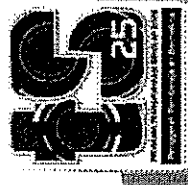
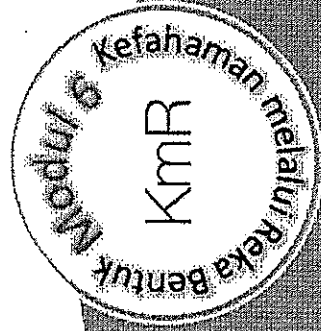
Anda akan berjaya sekiranya anda:

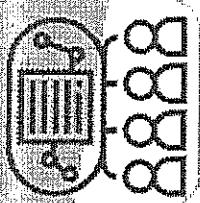
- ▶ Melengkapkan perancangan P&P berasaskan PBL bersepadu
- ▶ Melaksanakan P&P berasaskan PBL bersepadu



Showcasing - Perkongsian Murid

- ▶ Showcasing **memberi peluang dan ruang** kepada murid untuk berkongsi pengalaman pembelajaran melalui hasil projek di samping melaporkan apa yang mereka telah pelajari.
- ▶ Showcasing merangkumi lakonan, pembentangan portfolio, persembahan, tayangan, atau pertunjukan yang **dikendalikan oleh murid sendiri**.
- ▶ Showcasing mengemukakan **eviden prestasi murid** yang dinilai melalui pelbagai kaedah. Sebagai contoh, pengetahuan kandungan dinilai berasaskan pencapaian murid melalui bahan bukti yang terdapat dalam portfolio.



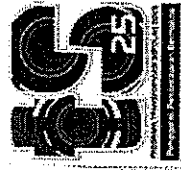
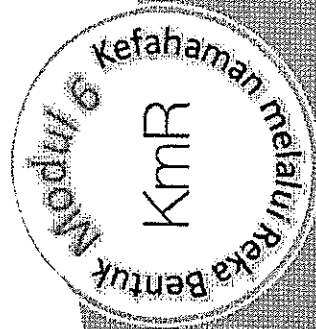


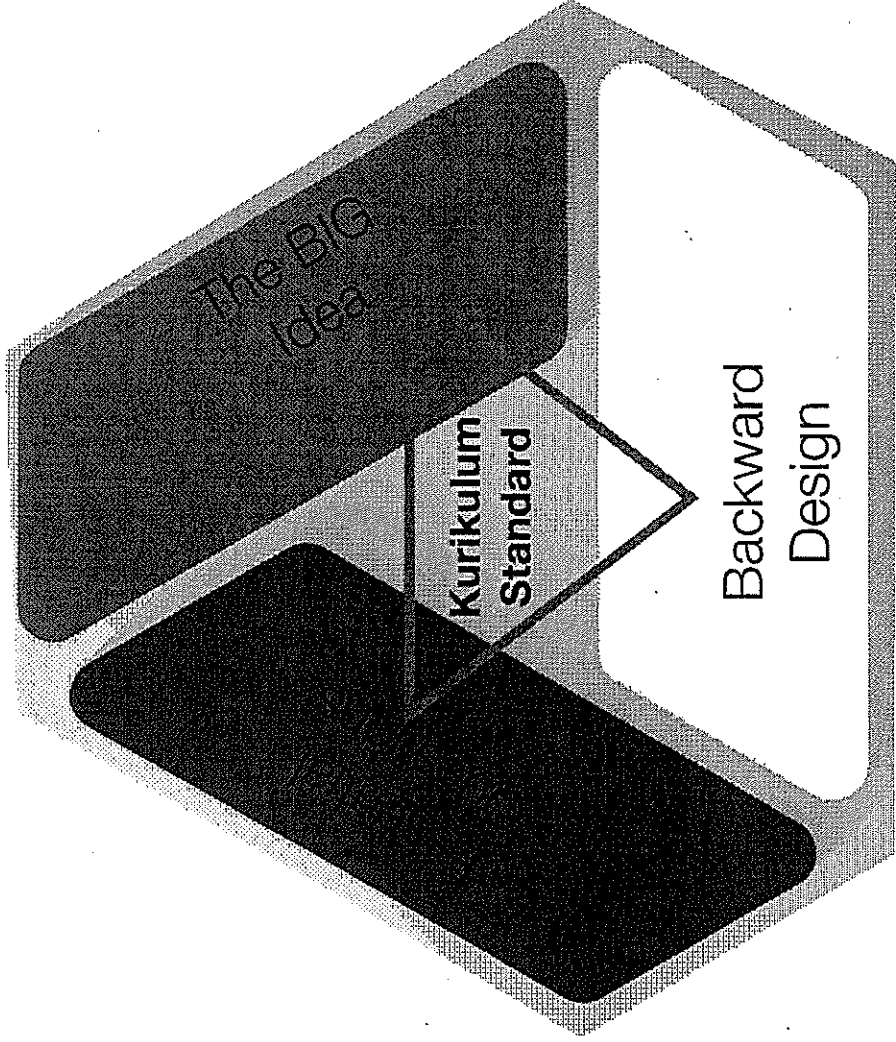
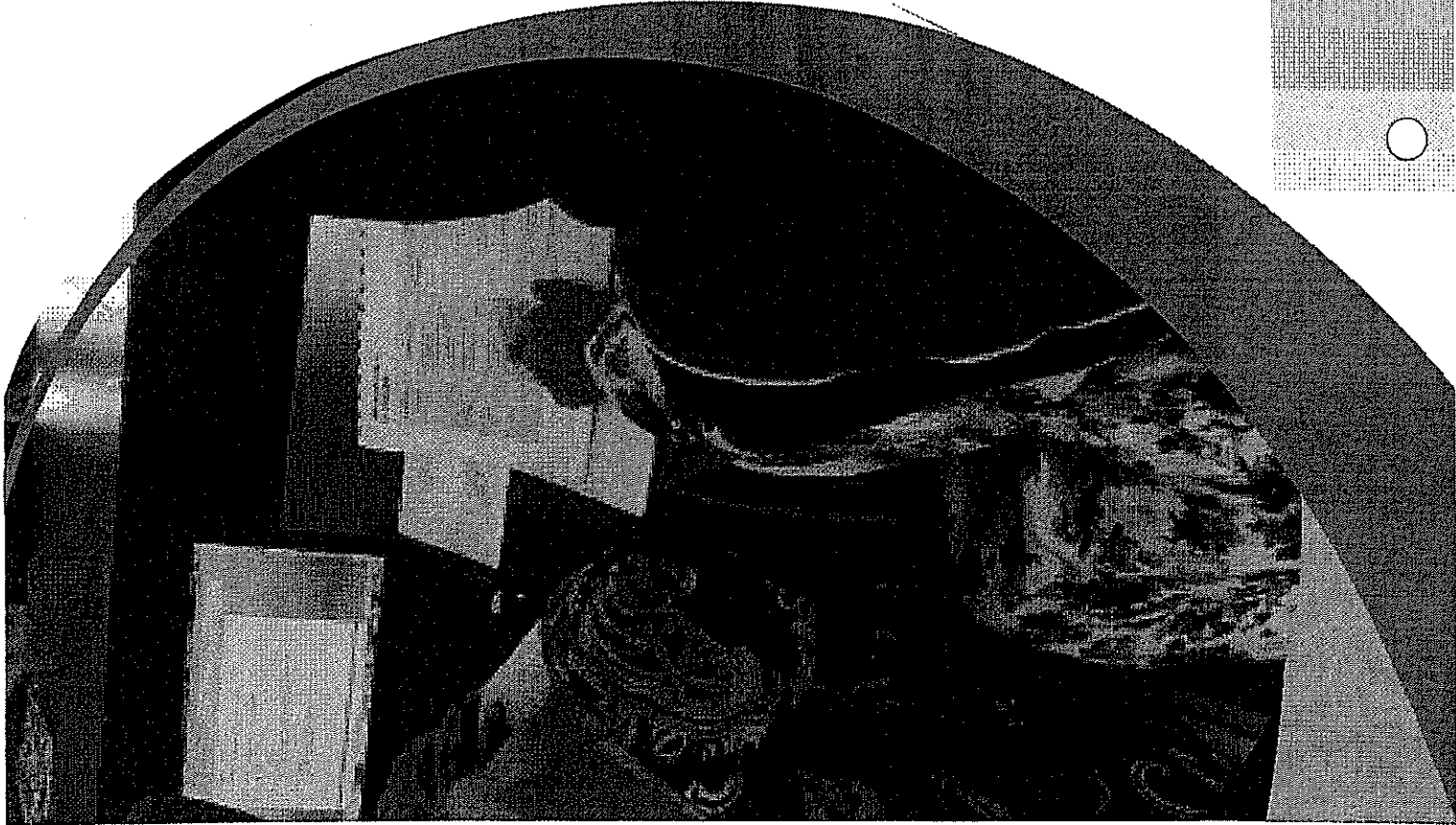
M6.2: Aktiviti 1 (Pejelasan PBL Bersepadu)

Hasil Pembelajaran:

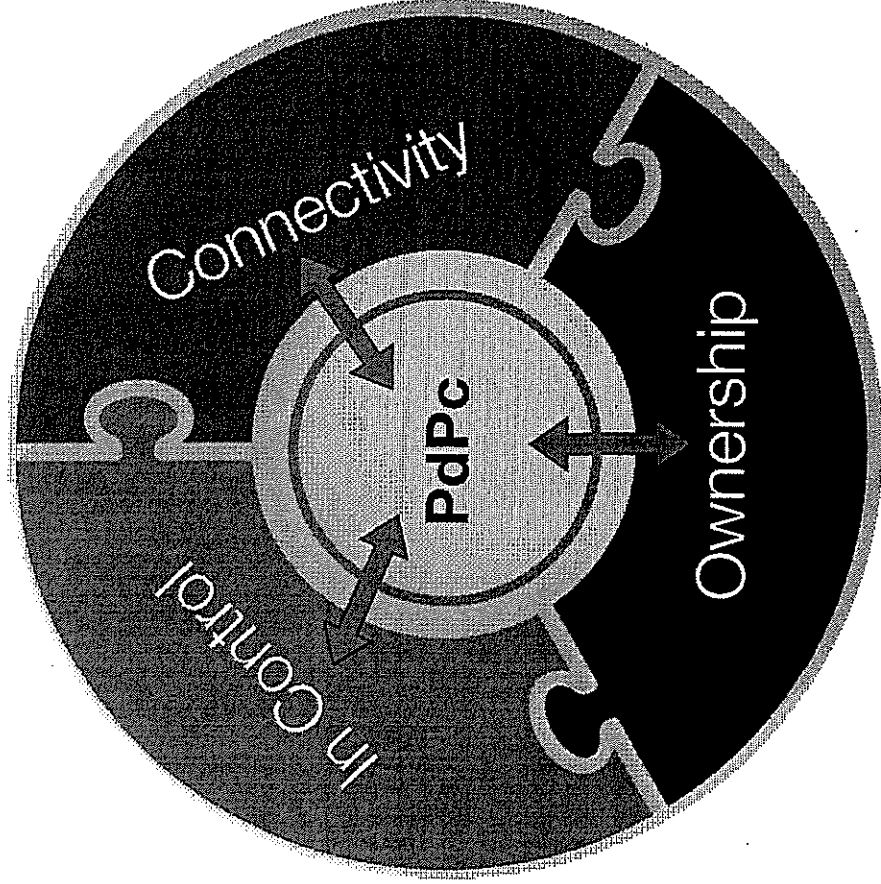
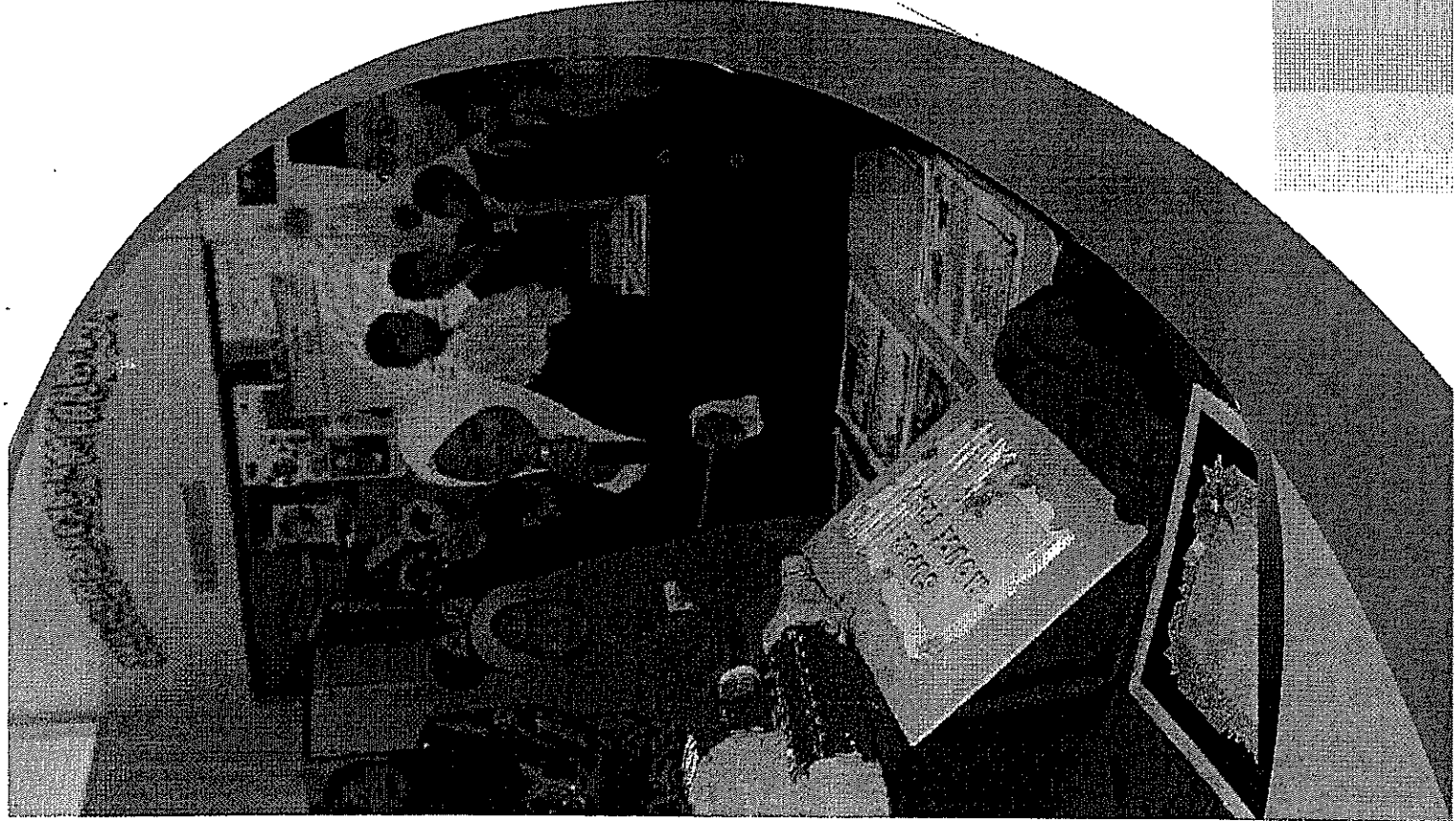
Semasa mengikuti aktiviti ini, peserta dapat

1. Mengenal pasti langkah-langkah terdapat dalam Kitaran PBL
2. Menyatakan ciri-ciri PBL yang berkesan





○ Merungkaik Standard

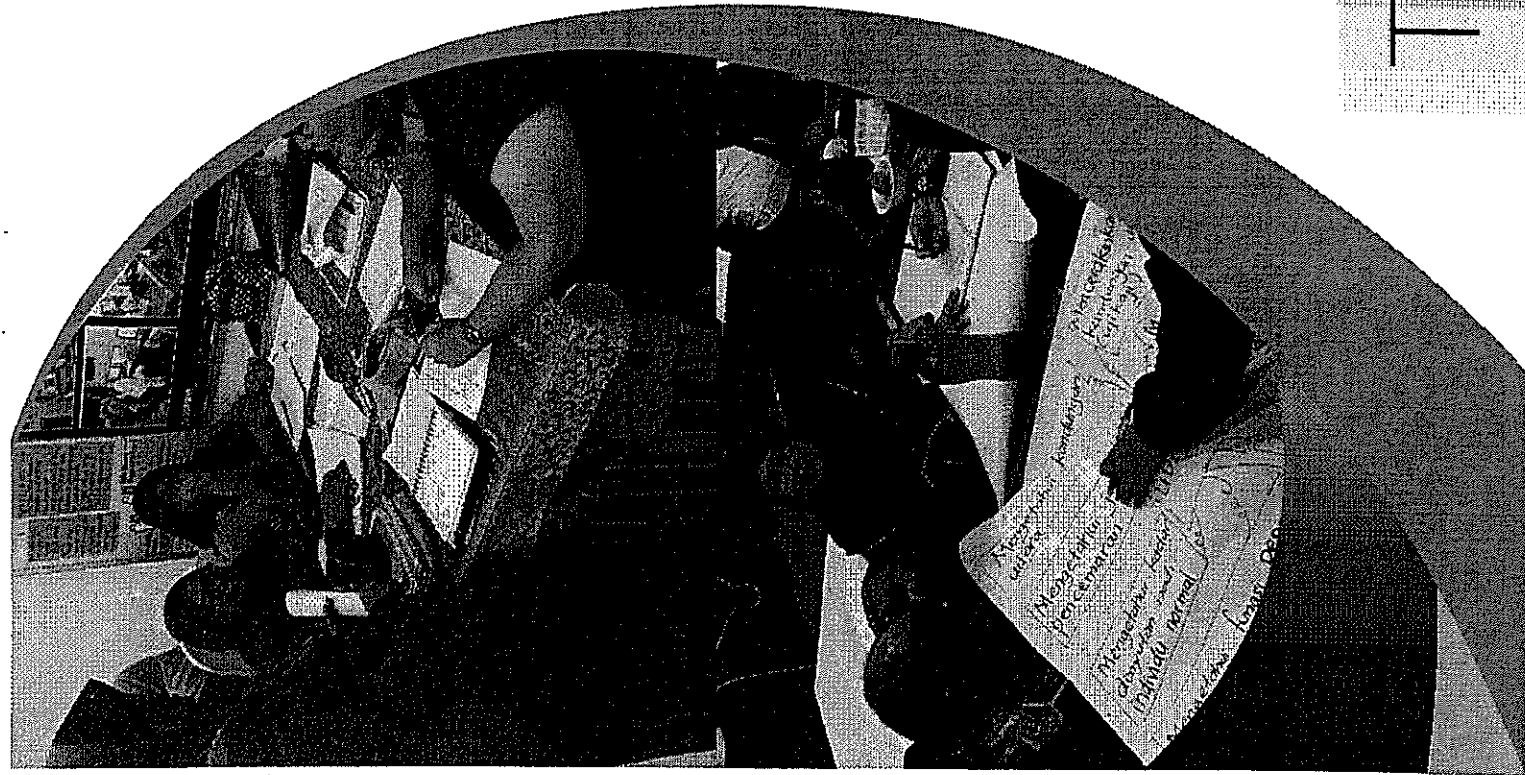


Merungklai Standard

“ A BIG idea is a way of usefully seeing connections, not just another piece of knowledge. It is more like a lens for better looking than something additionally seen; more like a theme than the facts of the story.”

Grant Wiggins
Jun 10, 2010

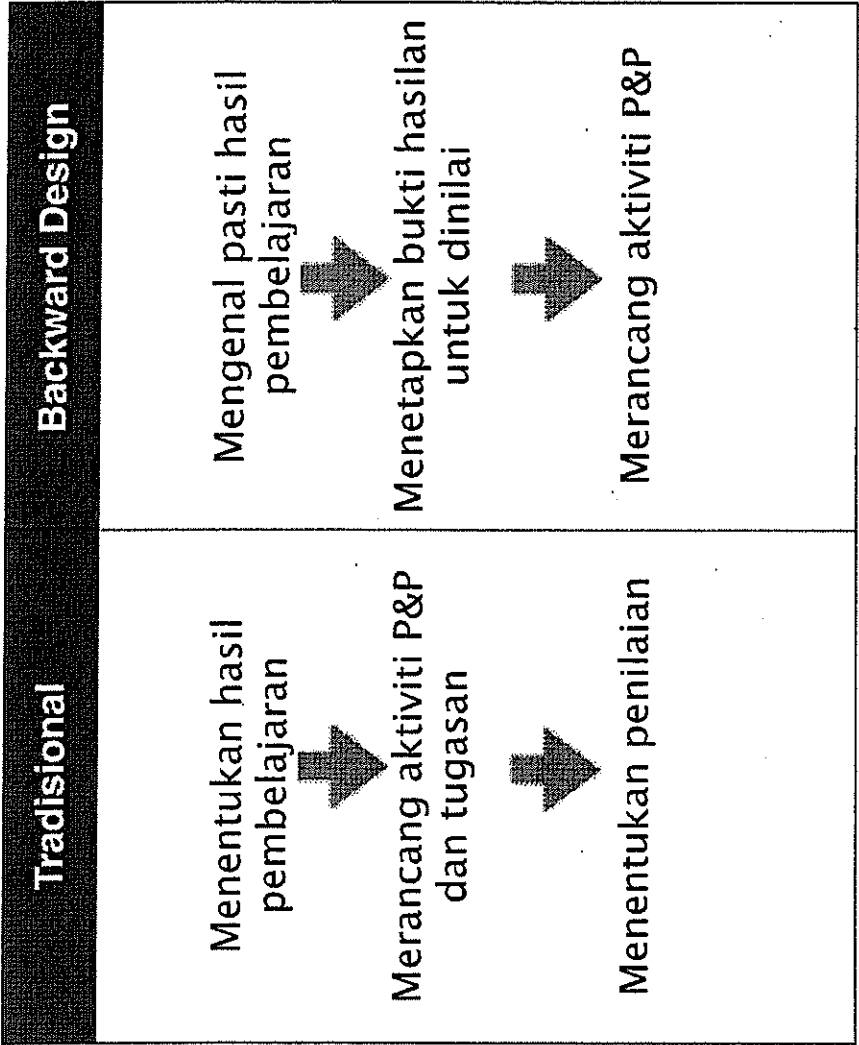
The Big Idea

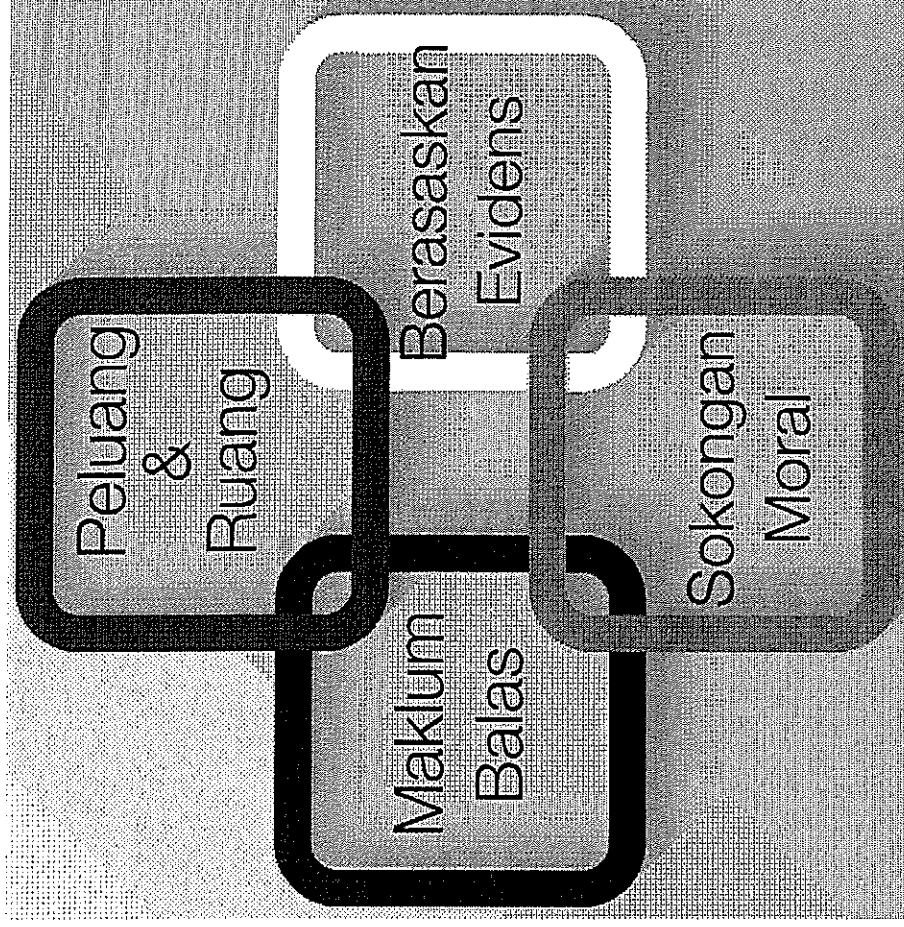
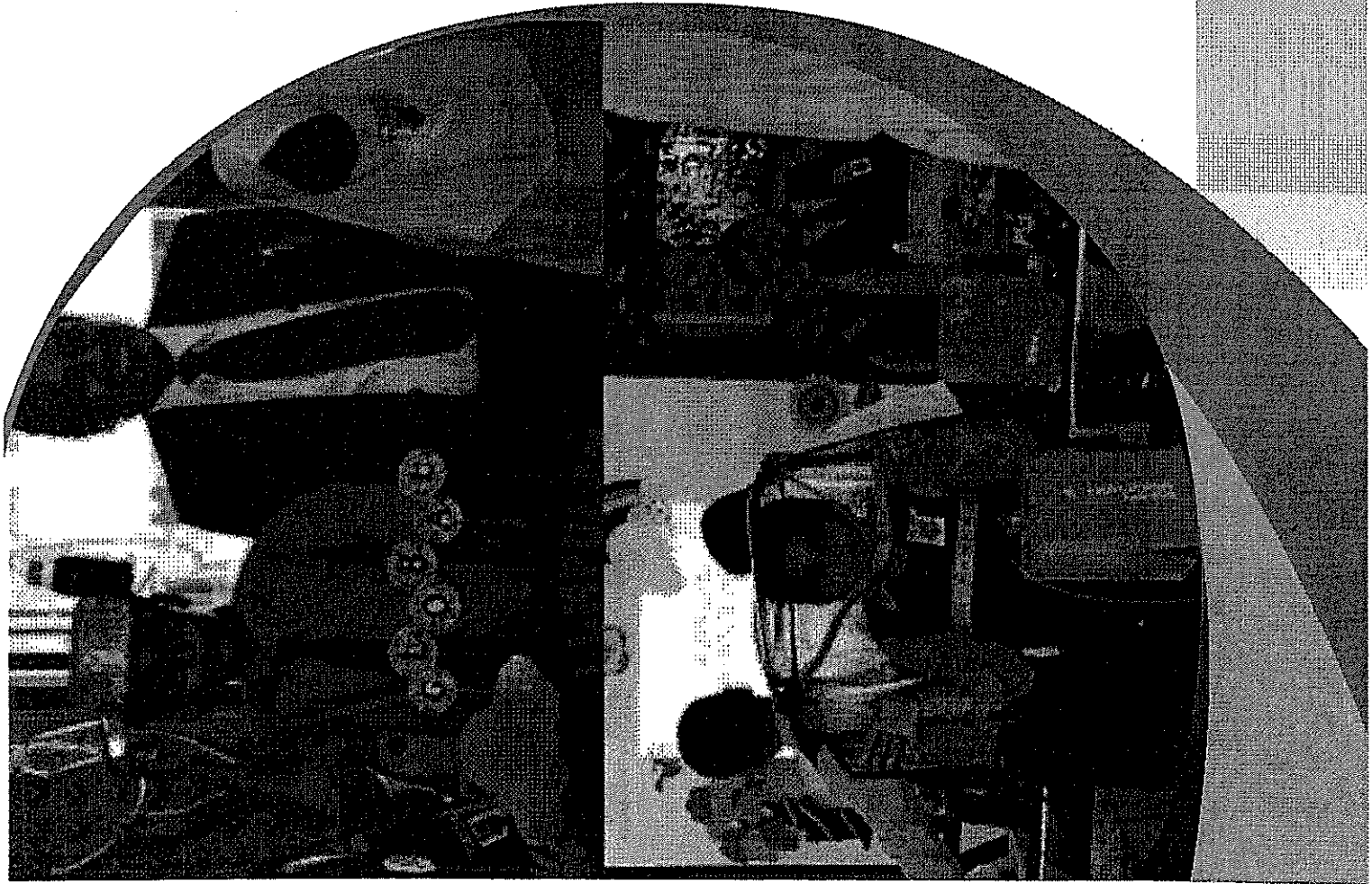


“ Questions that probe for deeper meaning and set the stage for further questioning foster the development of critical thinking skills and higher order capabilities such as; problem solving, and the understanding of complex systems..... the ability to ask great questions often separates great teachers from good ones”

(David Jakes, 2002)

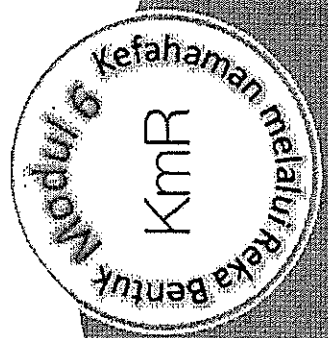
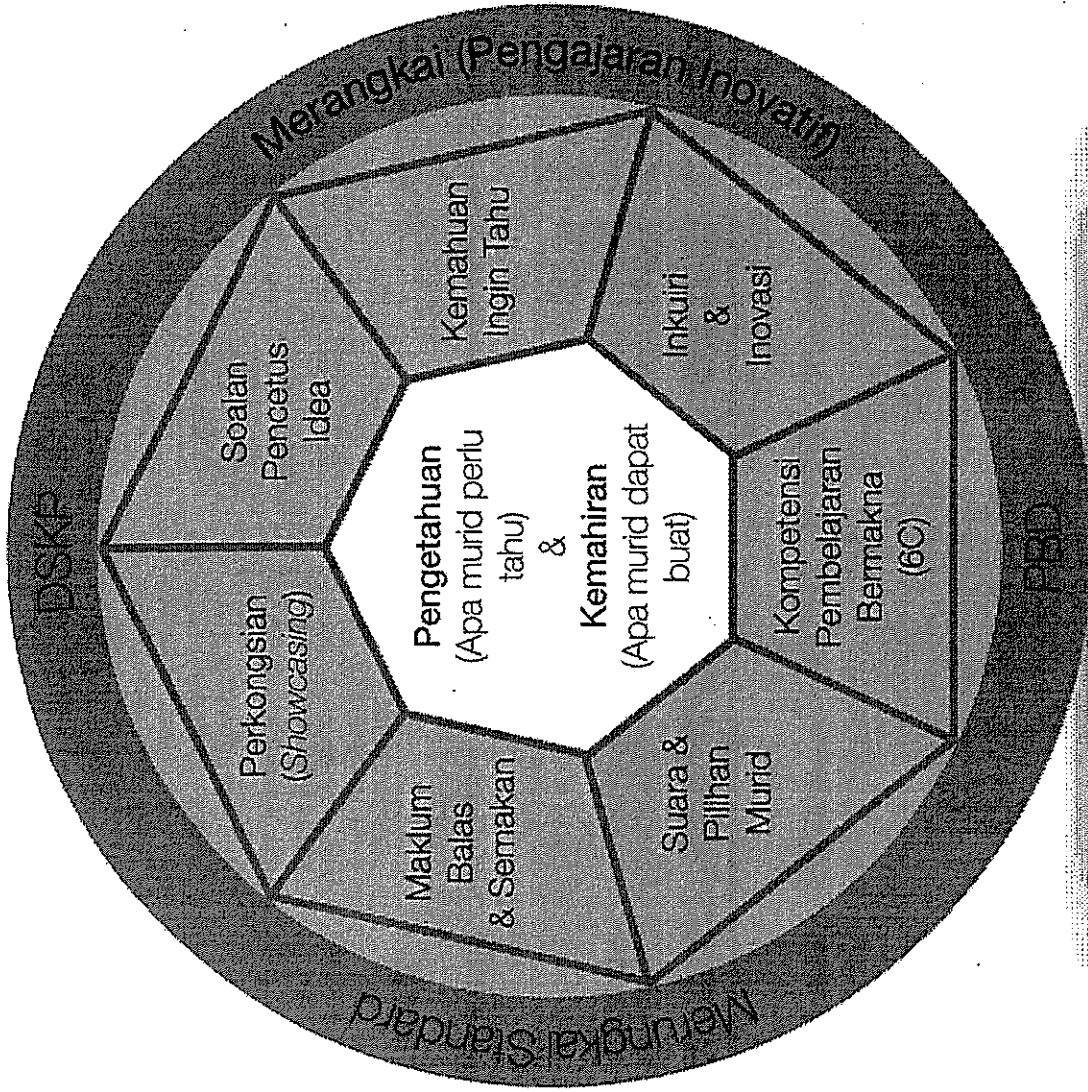
The Essential Questions





Showcasing

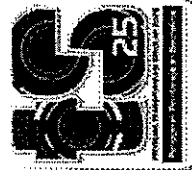
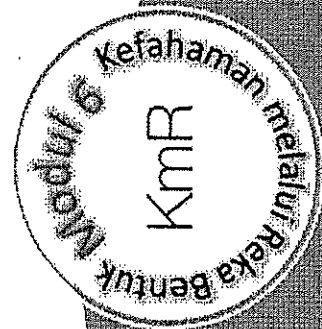
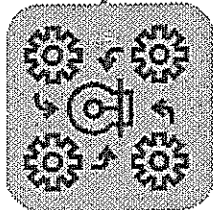
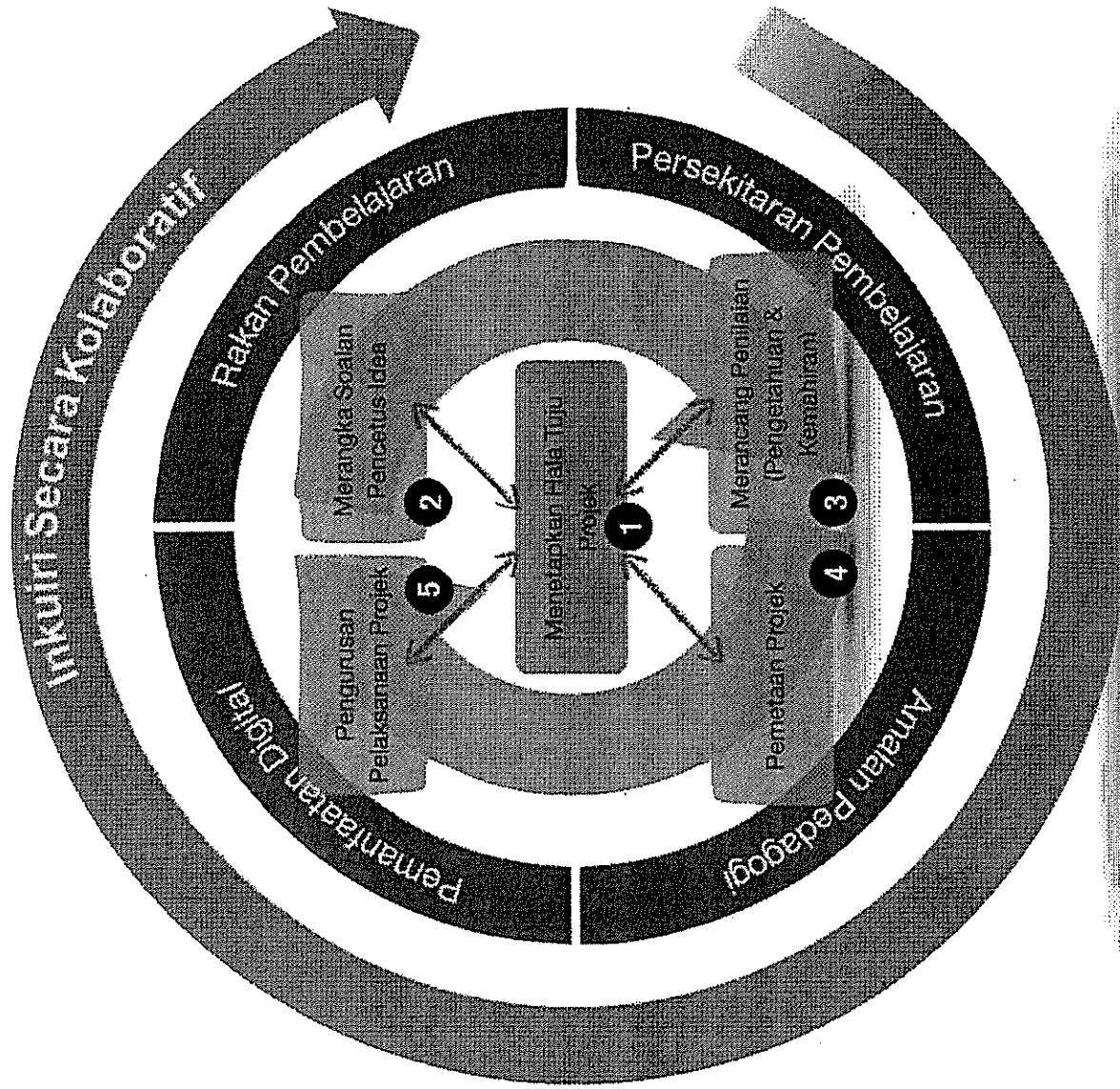
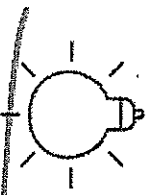
Model Pelaksanaan KmR



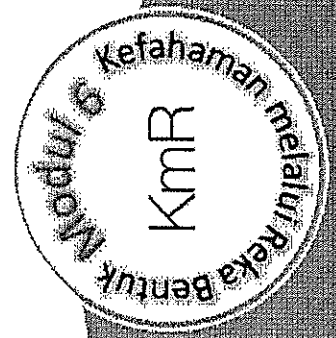
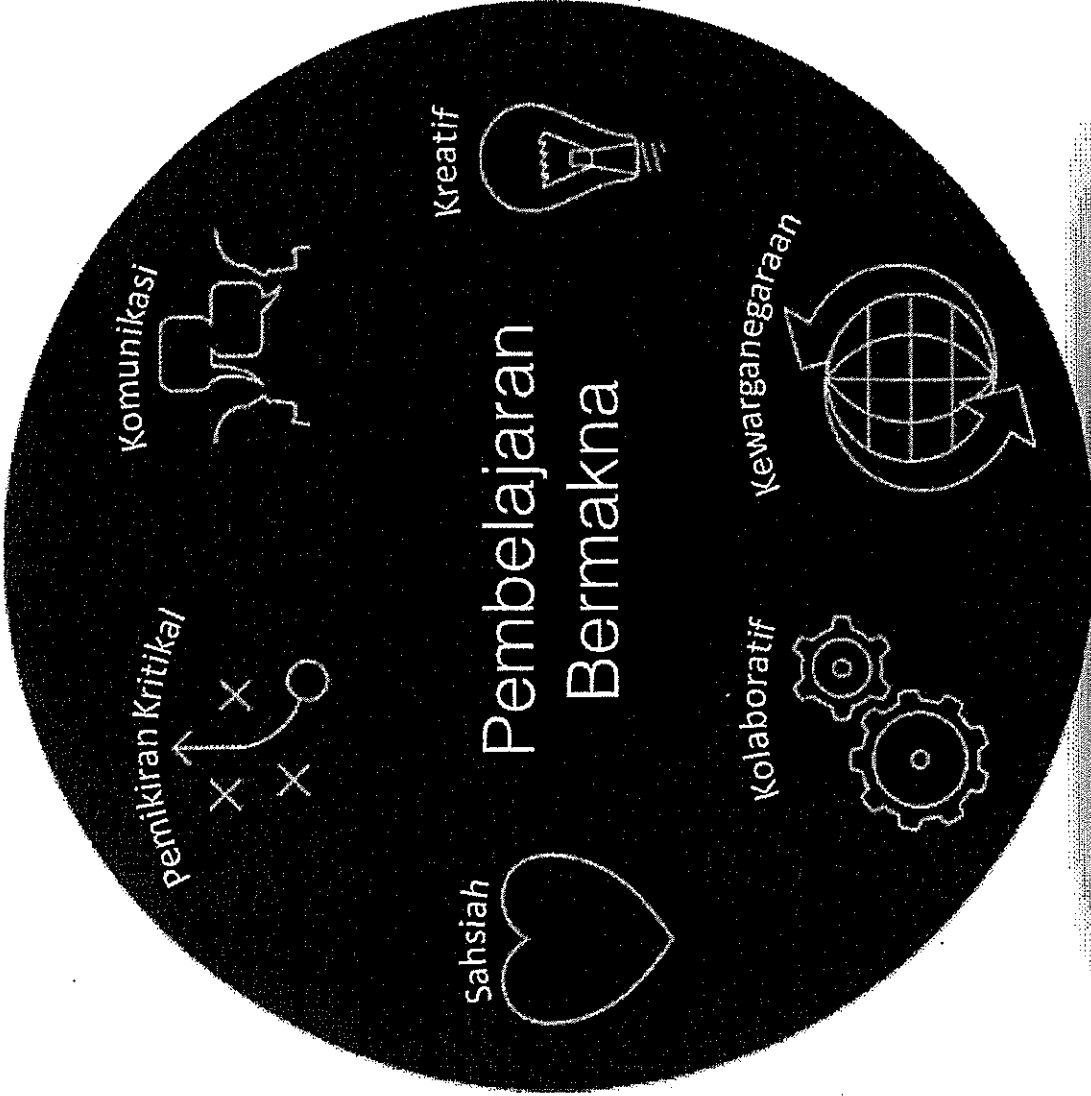
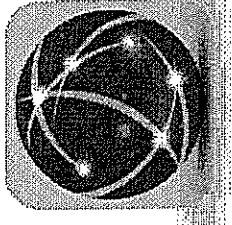
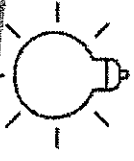
DSKP=Dokumen Standard Kurikulum dan Pentaksiran;
PBD=Pentaksiran Bilik Darjah



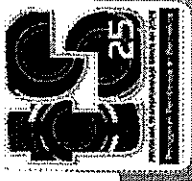
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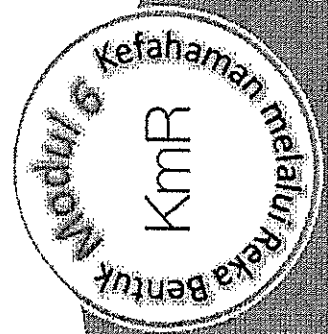
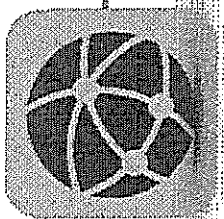
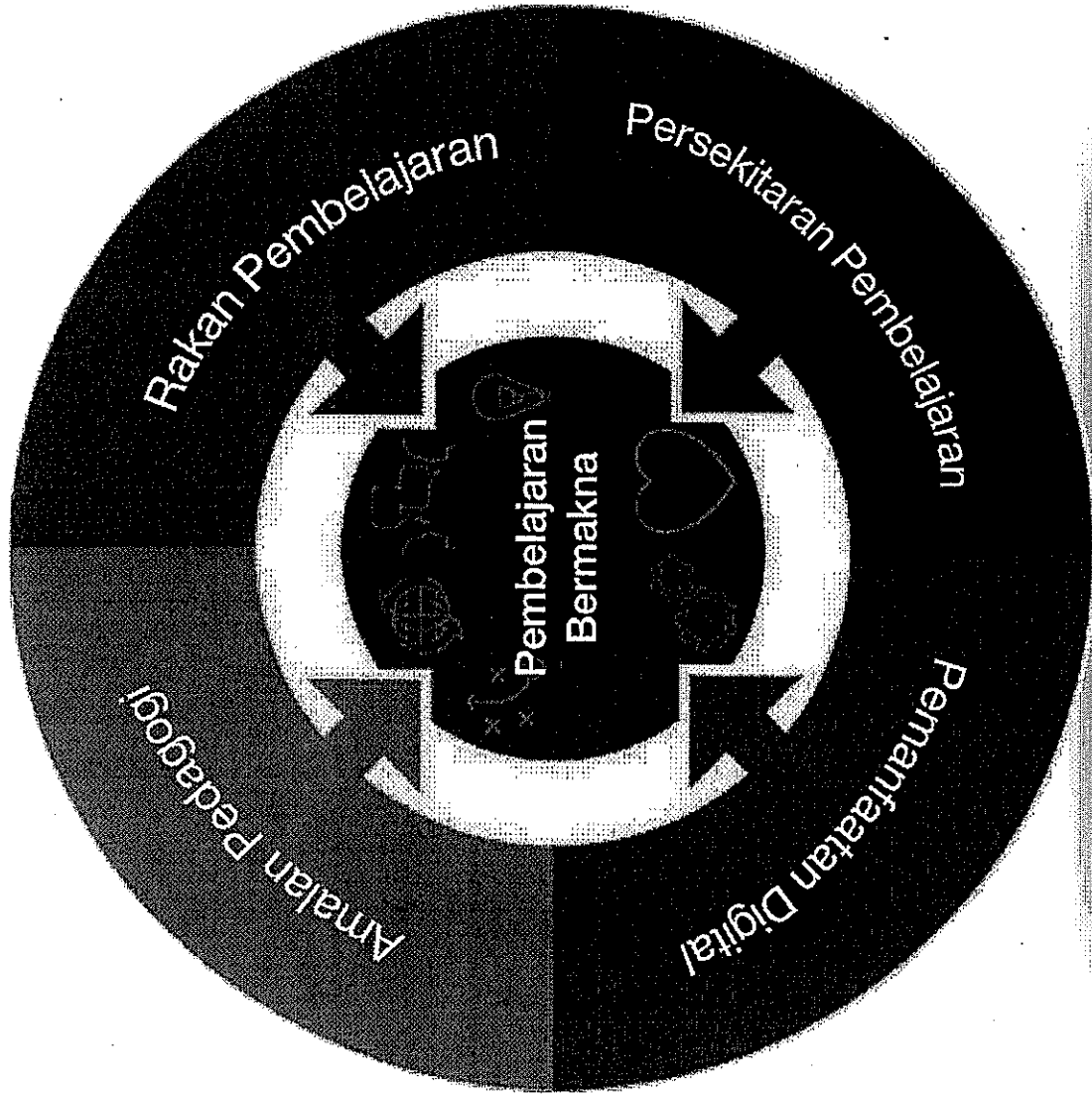
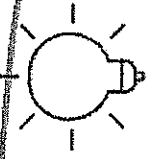
Kompetensi Pembelajaran Bermakna



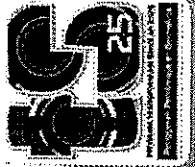
Adaptasi: Fullan, M., et al. (2017). *Deep Learning: Engage the World, Change the World*, SAGE Publications



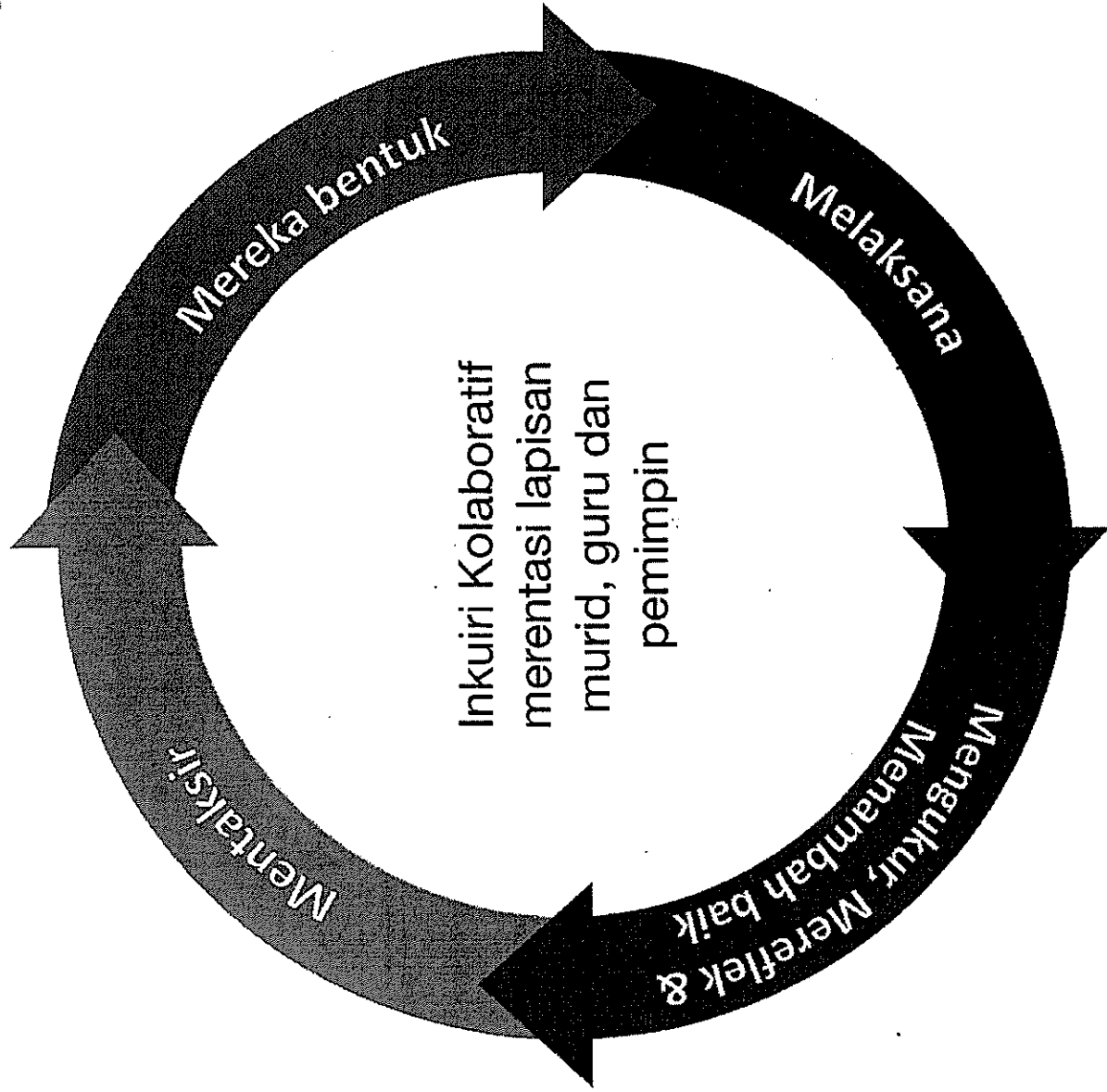
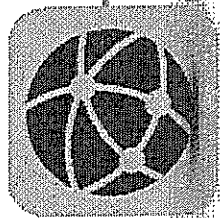
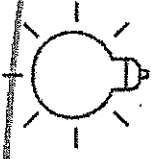
Model Reka Bentuk Pembelajaran



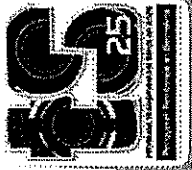
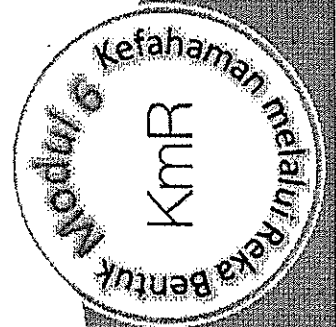
Adaptasi: Fullan, M., et al. (2017). *Deep Learning: Engage the World, Change the World*, SAGE Publications



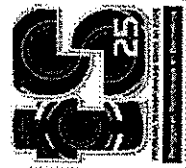
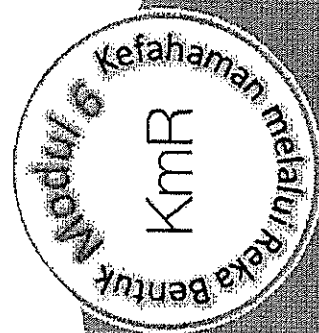
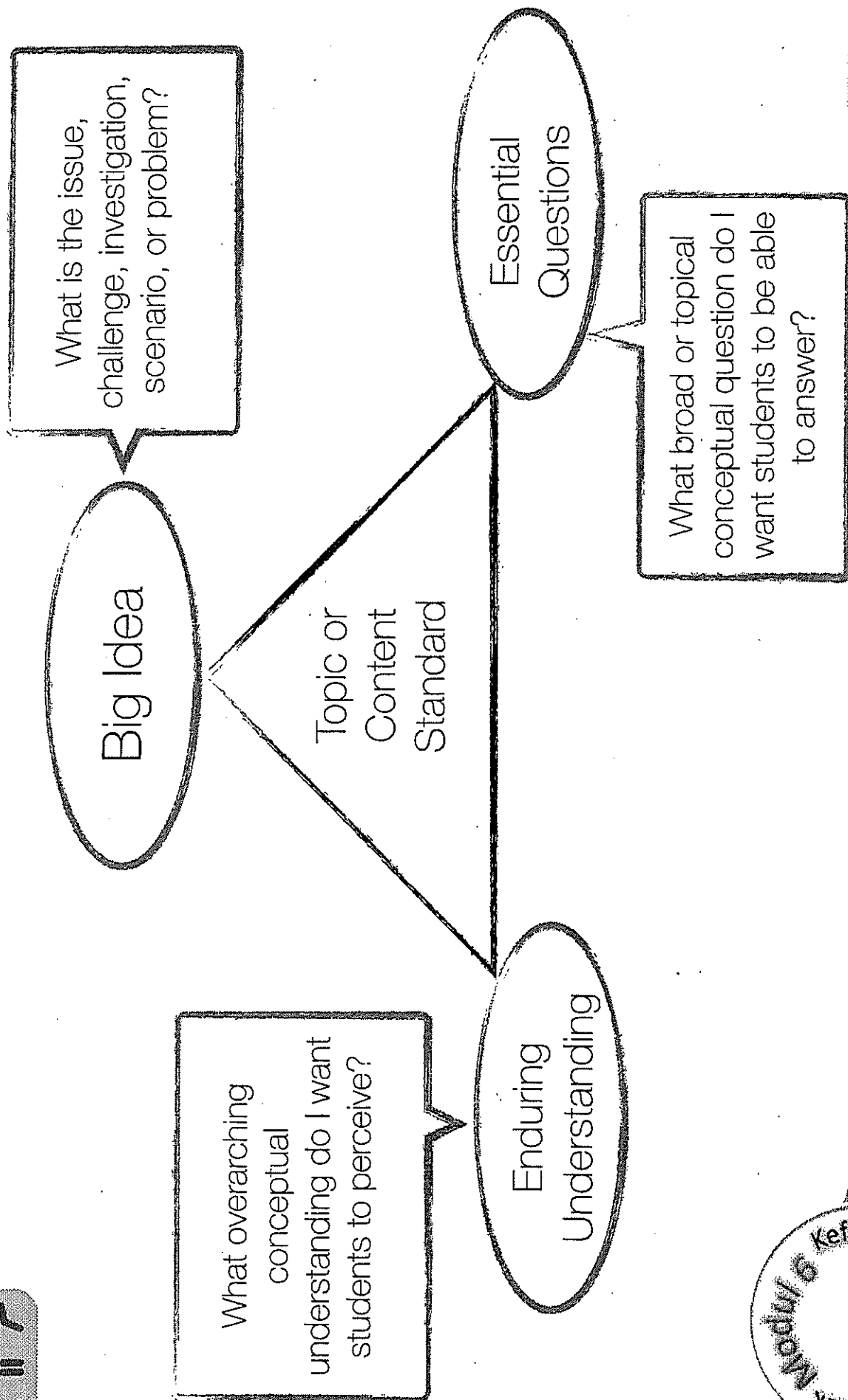
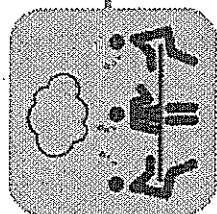
Inkuiri Kolaboratif



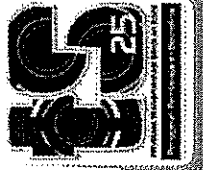
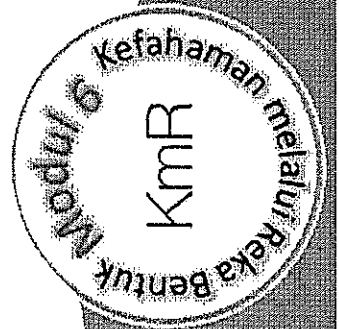
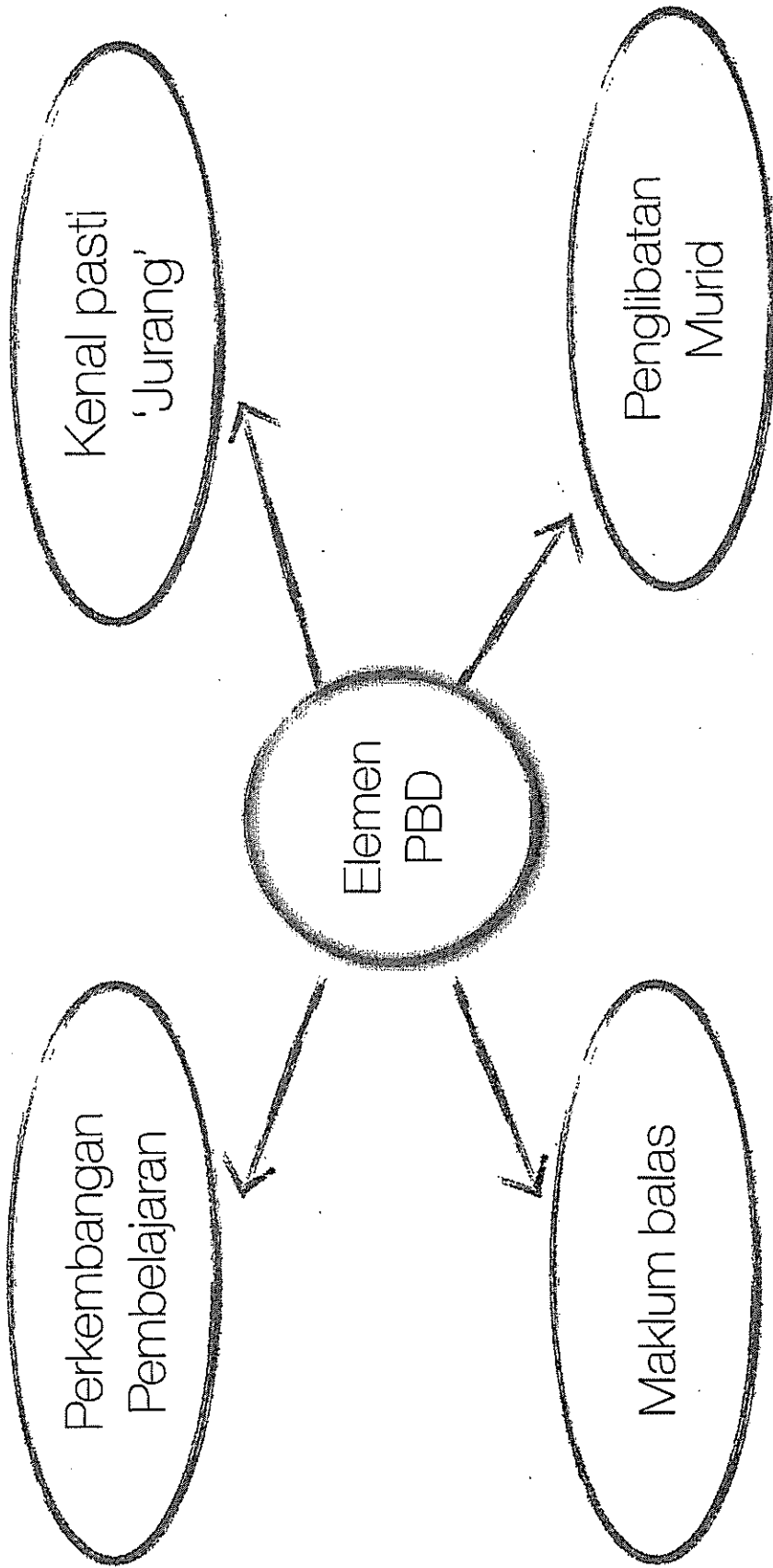
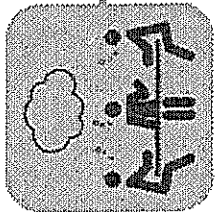
Adaptasi: Fullan, M., et al. (2017). *Deep Learning: Engage the World, Change the World*, SAGE Publications



Merangkai ...



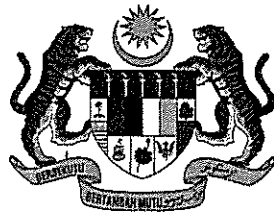
Elemen Pentaksiran Bilik Darjah ...



MODUL TERAS

(Merungkai Standard)





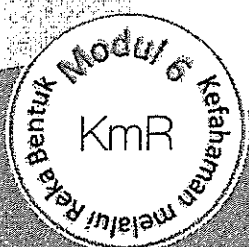
Program Transformasi Sekolah 2025 (TS25)

KmR: Toolkit Modul 6.1

Kefahaman melalui Reka Bentuk

Connecting Heart and Mind to the Standard

Modul Teras
Merungkai Standard



PENGGERAK PEMBELAJARAN BERMAKNA



Bahagian Pendidikan Guru
Kementerian Pendidikan Malaysia

Kandungan KmR - 6.1 (Toolkit)

AKTIVITI	TOOLKIT	HALAMAN
A1: Mengenal pasti 'The Big Idea'	▶ Toolkit - Carta KWL	2
	▶ Toolkit M6.1-A1-1 (Templat Mengenal pasti 'The Big Idea')	3
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A2: Soalan Penting (SP)	▶ Toolkit M6.1-A2-1 (Templat Membina SP)	5
	▶ Toolkit M6.1-A2-2 (Nota Kepentingan <i>Essential Question</i>)	6
A3: Amalan PdP	▶ Toolkit M6.1-A3-1 (Nota KmR Vs Konvensional)	11
A4: Kajian Kes ■ Pembelajaran Bermakna ■ Laporan tentang sistem pendidikan terbaik dunia	▶ Toolkit M6.1-A4-1 (Video - Sistem Pendidikan Terbaik Dunia)	13
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	▶ Toolkit M6.1-A5-2 (Senarai Semak - PBD)	23
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	▶ Toolkit M6.1-A6-2 (Templat Thinking Maps)	29
	▶ Toolkit Protokol 'Wows and Wonders'	30

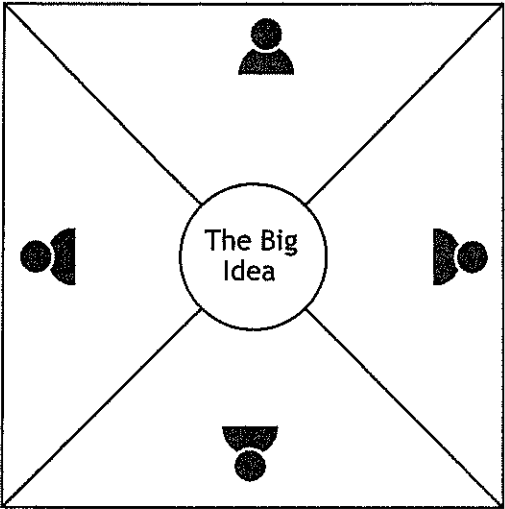
Toolkit M6.1: Carta KWL

K-W-L		
What You Know	What You Want to Know	What You Have Learned

KmR: Toolkit Modul 6.1

Toolkit M6.1-A1-1: Mengenal pasti 'The Big Idea'

KmR: Toolkit Modul 6.1

Mengenal pasti 'The Big Idea'	
Gariskan kata kunci dan konsep yang terdapat dalam pernyataan standard. Catatkan kata kunci tersebut di bawah:	
	
Tuliskan 'the Big Idea' dalam bentuk ayat atau 'bullet'. Sediakan catatan yang perlu untuk penerangan lanjut tentang apa yang pelajar perlu TAHU dan boleh LAKUKAN.	

Toolkit M6.1-A1-2: Senarai Semak Standard

Senarai Semak Standard

KmR: Toolkit Modul 6.1

Mengenal pasti Pengetahuan dan Kemahiran
Senaraikan kata nama, kenyataan kata nama dan kata sifat yang terdapat dalam dokumen standard:
Huraikan dalam perkataan atau beberapa 'bullet', apakah pelajar perlu TAHU.
Senaraikan kata kerja dan prasa kata kerja yang telah dikenal pasti dalam dokumen standard
Huraikan dalam ayat atau beberapa 'bullet', apa yang dijangkakan pelajar DAPAT LAKUKAN

Toolkit M6.1-A2-1: Templat Soalan Penting

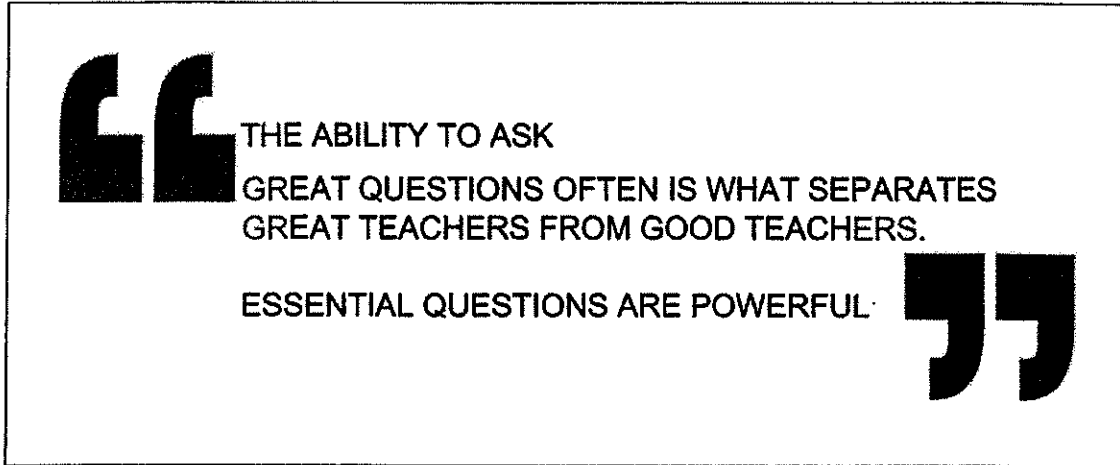
Menulis Soalan Penting (SP)

Soalan Penting (SP) yang bersifat terbuka (*open-ended*) merangkumi kandungan standard. Tuliskan soalan penting (SP) berasaskan ciri-ciri berikut:

- *SP mencetuskan persoalan terhadap kerangka konseptual standard dengan menasarkan komponen khusus standard tersebut.*
- *Ciri-ciri SP*
 - *Provokatif dan menimbulkan pelbagai hujah / pendapat / pandangan*
 - *Tiada jawapan YA atau TIDAK*
 - *Direkabentuk sebagai panduan ke arah memahami 'the Big Idea'*
 - *Bertujuan mendalami kefahaman pelajar*
 - *Direkabentuk untuk mencetus soalan-soalan lain untuk meningkatkan kefahaman terhadap standard*
 - *Memberi fokus terhadap elemen yang terdapat dalam standard*
 - *Pelajar perlu memahami soalan*
 - *Bersifat konseptual dan menyentuh kandungan standard*
 - *Menggunakan istilah yang umum*
 - *Autentik*

Soalan-soalan Penting:

Toolkit M6.1-A2-2: Nota Kepentingan *Essential Question*



Definition of an Essential Question:

A good essential question is the first step when designing inquiry-based learning.

Questions that probe for deeper meaning and set the stage for further questioning foster the development of critical thinking skills and higher order capabilities such as; problem solving, and the understanding of complex systems. A good essential question is the principle component of designing inquiry-based learning - the typical 'Who? What? Where? When? Why? and How?' of a course of study.

What Constitutes A Good Essential Question?

Consider the following points when creating essential questions in order to maximize effectiveness.

- ▶ In general, the best essential questions center on major issues, problems, concerns, interests, or themes relevant to students' lives and to their communities. Good essential questions are open-ended, non-judgmental, meaningful and purposeful with emotive force and intellectual bite, and invite an exploration of ideas. They encourage collaboration amongst students, teachers, and the community. They integrate technology to support the learning process.
- ▶ Consider what transcendent questions might be embedded in a topic or unit of study. 'Why?' or 'So What?' are examples of over-arching questions that help students see critical connections or relationships within a topic area. Why exactly are we studying this? How can this be applied in the larger world? What couldn't we do if we didn't understand this? What's the 'moral of the story'? What is worth remembering, after time has passed, about this topic, unit, novel, or experiment?

Toolkit M6.1-A2-2: Nota Kepentingan *Essential Question*

For example: Why should students read the novel, Lord of the Flies? Why this book and not another? What will they gain from this experience that will make a difference to them? What are the 'big ideas' in this work? What makes this book a classic?

- ▶ Questions like these help teachers focus on the 'point' of instruction. These questions are unlike leading questions, which could help students follow key events of the plot, spot the author's use of symbolism, or clarify characterization. Over arching questions tap into larger ideas that can be accessed during a unit such as a novel study of Lord of the Flies.
- ▶ Decide on 'topical' essential questions, which directly relate to a specific topic or unit of study. For example, essential questions relevant to 'Lord of the Flies' might include: What does it mean to be civilized? Are modern civilizations more civilized than ancient ones? What is necessary to ensure civilized behavior? Do children need to be taught to be civilized? What causes us to lose civilized behavior?
- ▶ Essential questions are also recursive; that is, they naturally reoccur, often many times, during the study of a discipline. First graders as well as college students can offer valid aesthetic judgments about what makes a book a great book, for example.
- ▶ Wiggins and McTighe argue that essential questions like those posed above have a number of critical attributes.
 - ❑ First, they are arguable; there is no single obvious 'right' answer. Such questions ask students to 'uncover' ideas, problems, controversies, philosophical positions, or perspectives.
 - ❑ Second, essential questions often reach across subject boundaries and provoke a series of ensuing and related questions that help us reach an understanding.
 - ❑ Third, these questions often strike right at the heart of a discipline, such as: What can novels tell us? Whose version of history is being told? Can we ultimately prove anything in science? How do we know what we think we know?
- ▶ Essential questions can provide a focus for sifting through the information and details of a unit of study, and they especially encourage student inquiry, discussion, and research. They involve students in personalizing their learning and developing individual insights into a topic.

Toolkit M6.1-A2-2: Nota Kepentingan *Essential Question*

Essential Questions Are...

Core-Focused, Inquiry-Based, Reinforce Thinking Skills, Interdisciplinary, and Engaging

Core-Focused -----

- An arguable, recurring, and thought-provoking question that will guide inquiry and point toward big ideas.
- The essence of what students should examine and know in a course of study.
- Goes to the heart of a discipline. The same question can be re-asked throughout a main subject (i.e. - Mathematics), but with increasing levels of sophistication.
- Probes what is important to teach, and thus emphasizes inquiry and investigation instead of objectives.
- Learning objectives posed as a question.
- Helps to organize by providing a backbone and reference points.
- Declares the intent or the focus of the learning.
- Serves as the scope and sequence—a logical pattern of investigation as the students progress through their educational journey.

Inquiry-Based -----

- A creative choice that transforms the search for knowledge.
- Are open-ended and resist an obvious simple or single right answer. A quick and simple 'yes' or 'no' response cannot answer this type of question.
- Lead to other essential questions that are related, or to questions that are posed by students. Good questions provoke other good questions. Try to create families of related questions that can anchor a course or unit. Encourage students to create their own questions as they attempt to clarify the main Essential Question.

Reinforce Thinking Skills -----

- Are deliberately thought provoking counter intuitive, and/or controversial.
- Require students to draw upon content knowledge, personal experience, and other information they have gathered to construct their own answers.
- Causes students to search for an answer using critical thinking (ultimately using Bloom's higher order thinking—Analyze, Synthesize, Evaluate).

Interdisciplinary -----

- Most essential questions are interdisciplinary in nature. They usually cut across lines created by schools and scholars to mark the terrain of departments and disciplines.
- Usually lend themselves well to multidisciplinary investigations, requiring for example, that students apply the skills and perspectives of math and language arts to social studies or science.

Toolkit M6.1-A2-2: Nota Kepentingan *Essential Question*

Engaging -----

- ❑ Can be revisited throughout the unit to engage students in evolving dialogue and debate.
- ❑ Should engage students by using real-life applied problem solving.
- ❑ Should be created to provoke and sustain student interest. Engaging questions are thought provoking, likely to produce interesting student questions, and take into consideration diverse interests and learning styles.

Writing An Essential Question

Essential Questions are powerful, directive and commit students to critical thinking.

Effective questioning strategy by teachers is required to promote thinking by students. The ability to ask great questions often separates great teachers from good ones. Essential questions are powerful, directive, and commit students to the process of critical thinking through inquiry. Ultimately, the answer to the essential question will require that students craft a response that involves knowledge construction. This new knowledge building occurs through the integration of discrete pieces of information obtained during the research process. Answers to essential questions are a direct measure of student understanding.

Avoiding the Simple Question

Writing questions such as ‘What is cancer?’ simply asks students to move information from one point (the resource) to another (their paper). By asking this type of question, you license the student to plagiarize. Instead of the above question, we may ask students the essential question: ‘What plan could you develop that would reduce your likelihood of developing cancer?’ This is a more powerful question than ‘What is cancer?’ However, the question is not yet finished. At this point, it is helpful to visualize the answer. In this case, a student could answer this question by developing a list of strategies. They are still moving information. A much better question is: ‘What plan could you develop that would reduce your likelihood of developing cancer? Your plan can have only two strategies. Defend why you selected those two strategies.’ In this case, the question requires students to discriminate among the potential list of strategies, and then defend their choice.

THE ABILITY TO ASK. GREAT QUESTIONS OFTEN IS WHAT SEPARATES GREAT TEACHERS FROM GOOD TEACHERS. ESSENTIAL QUESTIONS ARE POWERFUL.

More Examples -----

- Is it acceptable to clone human beings?
- What invention of the 20th Century has had the greatest impact? Justify your

Toolkit M6.1-A2-2:

Nota Kepentingan *Essential Question*

response.

- Who was the greatest home run hitter in baseball history?
- Which credit card is best for me?
- What plan could be developed to reduce the impact of zebra mussels on the Great Lakes ecosystem? Your plan can include three strategies.
- What is the best plan for losing 20 pounds? Your plan can include 3 strategies.
- What plan could I use to prepare for a 5K run? The plan can include 2 strategies.

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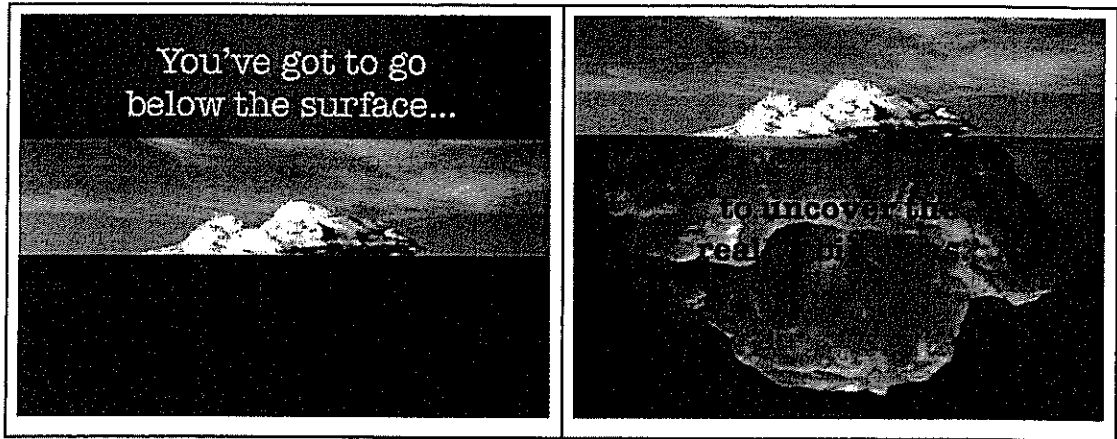
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Toolkit M6.1-A3-1: Nota KmR vs Konvensional

<h3 style="text-align: center;">How to 'Unpack Curriculum'?</h3> <p>"Unwrapped standards provide clarity as to what students must learn and be able to do. When teachers take the time to analyze each standard and identify its essential concepts and skills, the result is more effective instructional planning, assessment, and student learning"</p> <p style="text-align: right;">- Ainsworth (2003)</p>	<h3 style="text-align: center;">How to 'Unpack Curriculum'?</h3> <p style="text-align: center;">"Traditional"</p> <div style="text-align: center;">  </div> <p>C - Curriculum P - Pedagogy A - Assessment</p>								
<h3 style="text-align: center;">How to 'Unpack Curriculum'?</h3> <p style="text-align: center;">"Backward Design"</p> <div style="text-align: center;">  </div> <p>C - Curriculum P - Pedagogy A - Assessment</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Traditional</th> <th style="text-align: center;">KmR</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Menentukan hasil pembelajaran</td> <td style="text-align: center;">Mengenal pasti hasil pembelajaran</td> </tr> <tr> <td style="text-align: center;">Merancang aktiviti P&P dan tugas</td> <td style="text-align: center;">Menetapkan bukti hasil untuk dinilai</td> </tr> <tr> <td style="text-align: center;">Menentukan penilaian</td> <td style="text-align: center;">Merancang aktiviti P&P</td> </tr> </tbody> </table>	Traditional	KmR	Menentukan hasil pembelajaran	Mengenal pasti hasil pembelajaran	Merancang aktiviti P&P dan tugas	Menetapkan bukti hasil untuk dinilai	Menentukan penilaian	Merancang aktiviti P&P
Traditional	KmR								
Menentukan hasil pembelajaran	Mengenal pasti hasil pembelajaran								
Merancang aktiviti P&P dan tugas	Menetapkan bukti hasil untuk dinilai								
Menentukan penilaian	Merancang aktiviti P&P								
<p>"Unpack" the standard to identify:</p> <ul style="list-style-type: none"> ✓ The Big Idea ✓ The Enduring Understandings ✓ The Essential Question and Key Question ✓ The Knowledge and Skills needed to master the standard 	<h3 style="text-align: center;">3 Stages of ("Backward") Design</h3> <ol style="list-style-type: none"> 1. Identify desired results 2. Determine acceptable evidence 3. Plan learning experiences & instruction 								

Toolkit M6.1-A3-1: Nota KmR vs Konvensional

KmR: Toolkit Modul 6.1



Toolkit M6.1-A4-1:

Video - Sistem Pendidikan Terbaik Dunia

SENARAI VIDEO :

Sistem Pendidikan Dunia - Strong Performers and Successful Reformers in Education

1.	<p>Singapore - Strong Performers and Successful Reformers in Education Tempoh: min 18.20</p> <p>A strong education system has enabled Singapore to develop a modern vibrant economy. Well trained and highly motivated teachers are central to its success.</p>	<p>URL: http://www.youtube.com/watch?v=Km25TAnPbI4</p>
2.	<p>Finland - Strong Performers and Successful Reformers in Education Tempoh: min 18.53</p> <p>Finland's schools are well integrated in communities and teachers are highly committed, making it a top PISA performer with little variation among pupils of differing backgrounds.</p>	<p>URL: www.youtube.com/watch?v=ZwD1v73O4VI</p>
3.	<p>Shanghai, China - Strong Performers and Successful Reformers in Education Tempoh: min 19.46</p> <p>A drive by Shanghai authorities to help low-performing schools and students took the city's secondary-school students to top place in the PISA 2009 tests.</p>	<p>URL: http://www.youtube.com/watch?v=yxT94FXwSPM</p>
4.	<p>Korea - Strong Performers and Successful Reformers in Education Tempoh: min 15.48</p> <p>Building on the successes of its fast-developing ICT sector, Korea is using digital technology to stimulate a creative approach to learning that gives students access to education materials wherever and whenever they want.</p>	<p>URL: http://www.youtube.com/watch?v=OJhzdIBUPs0</p>

KmR: Toolkit Modul 6.1

Toolkit M6.1-A4-1: Video - Sistem Pendidikan Terbaik Dunia

KMP: Toolkit Modul 6.1

5.	<p>Ontario, Canada - Strong Performers and Successful Reformers in Education Tempoh: min 17.23</p> <p>Provincial governments run education in Canada, and Ontario shows how high-school students can do well whatever their family background, first language or place of birth.</p>	<p>URL: http://www.youtube.com/watch?v=p4d9o6RpYDM</p>
6.	<p>Germany - Strong Performers and Successful Reformers in Education Tempoh: min 18.47</p> <p>When the first PISA tests in 2000 placed German students well below the average in OECD countries for reading and literacy, the nation was shocked. The revelation sparked a nationwide debate about Germany's school system and what was needed to improve it.</p>	<p>URL: http://www.youtube.com/watch?v=q4vVwWBqLCM</p>
7.	<p>Portugal - Strong Performers and Successful Reformers in Education Tempoh: min 18.27</p> <p>Faced with widespread underperformance and inequalities of opportunity and outcomes, Portugal is reorganizing and modernizing its school network, grouping schools in 'clusters' that offer better facilities for all.</p>	<p>URL: http://www.youtube.com/watch?v=M0zY8IcEIT8</p>
8.	<p>Japan - Strong Performers and Successful Reformers in Education Tempoh: min 17.57</p> <p>To help students develop critical thinking and problem-solving skills, the government requires students to study topics from different viewpoints and draw links between what they observe.</p>	<p>URL: http://www.youtube.com/watch?v=ygInMvH30QU</p>

Toolkit M6.1-A4-1: Video - Sistem Pendidikan Terbaik Dunia

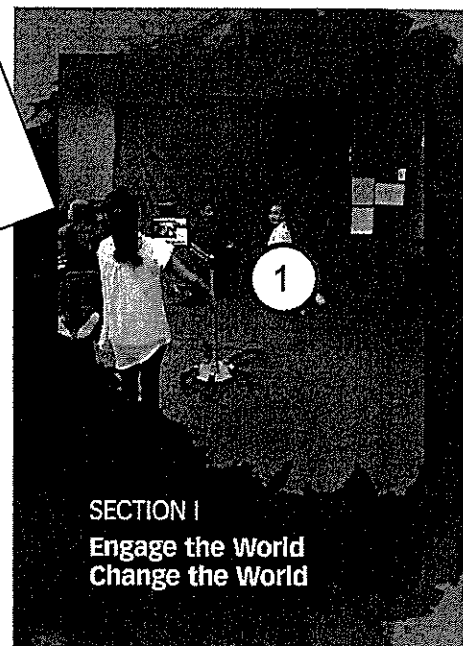
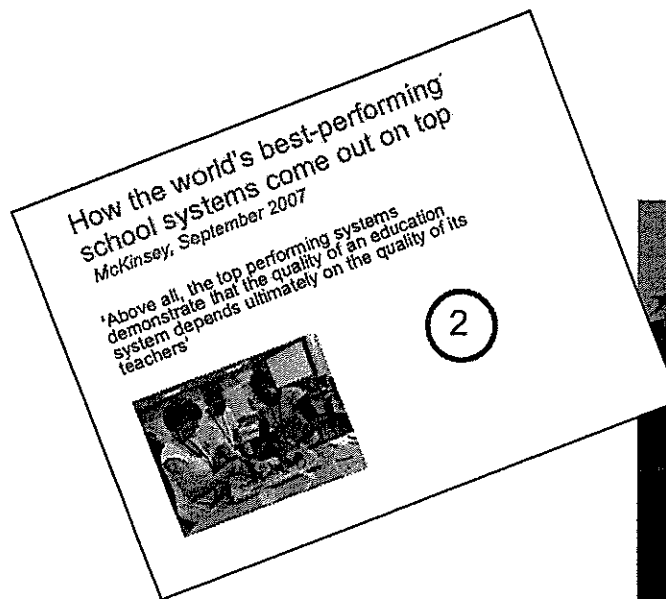
9.	Brazil - Strong Performers and Successful Reformers in Education Tempoh: min 21.50 In a decentralized system dogged by uneven teacher quality, poor infrastructure and low student commitment, Brazil is using benchmarking to identify problems and drive reform.	URL: http://www.youtube.com/watch?v=Sm6zAMEmfYs
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Toolkit M6.1-A4-2:

Artikel - *How the world's best-performing school systems come out on top & Deep Learning*

ARTIKEL :

1	Deep Learning: Engage the World Change the World (2017)
3	How the world's best-performing school systems come out on top (February, 2008)



Membuat rumusan bagi kedua-dua artikel dengan menggunakan infografik.

Toolkit M6.1-A4-3: Senarai Semak Video

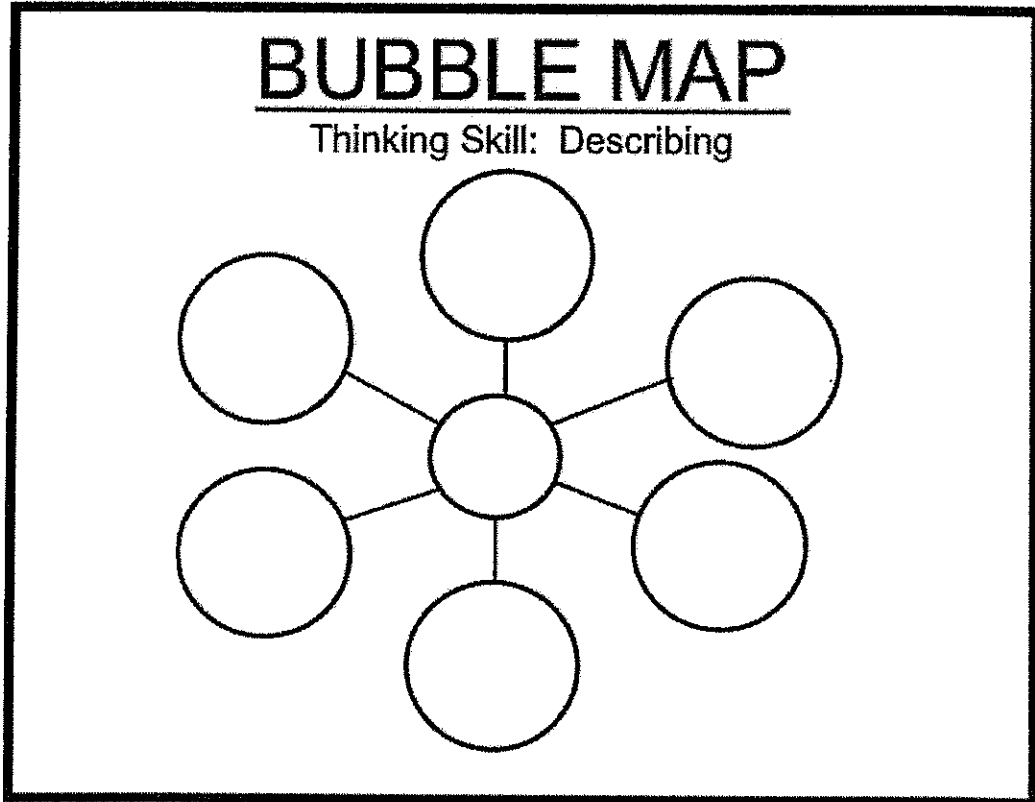
Senarai Semak Video - Sistem Pendidikan Terbaik Dunia

Negara	Ciri-ciri	Implikasi terhadap amalan PdP (PBD dan 6C)
Korea	Persekitaran digital dalam kalangan pelajar	Guru dan pelajar mengintegrasikan teknologi dalam bilik darjah - contohnya pelajar menganalisis maklumat melalui Internet
Singapore		
Brazil		
German		
Finland		
Jepun		
Portugal		
Shanghai		

KmR: Toolkit Modul 6.1

Toolkit M6.1-A4-4: Templat Bubble Map

KmR: Toolkit Modul 6.1



Toolkit M6.1: 'Wows & Wonders'

Mencari "Wows and Wonders"

- Menilai Hasil Kerja

Matlamat aktiviti ini adalah untuk mendapatkan pemahaman tentang aktiviti bimbingan berdasarkan konteks dan hasil kerja agar selari dengan matlamat bimbingan. Bentuk kumpulan yang terdiri dari empat hingga enam peserta dan gunakan protokol "Wows and Wonders" yang disediakan di bawah. Lantik seorang ahli kumpulan sebagai pembentang dan seorang lagi sebagai fasilitator.

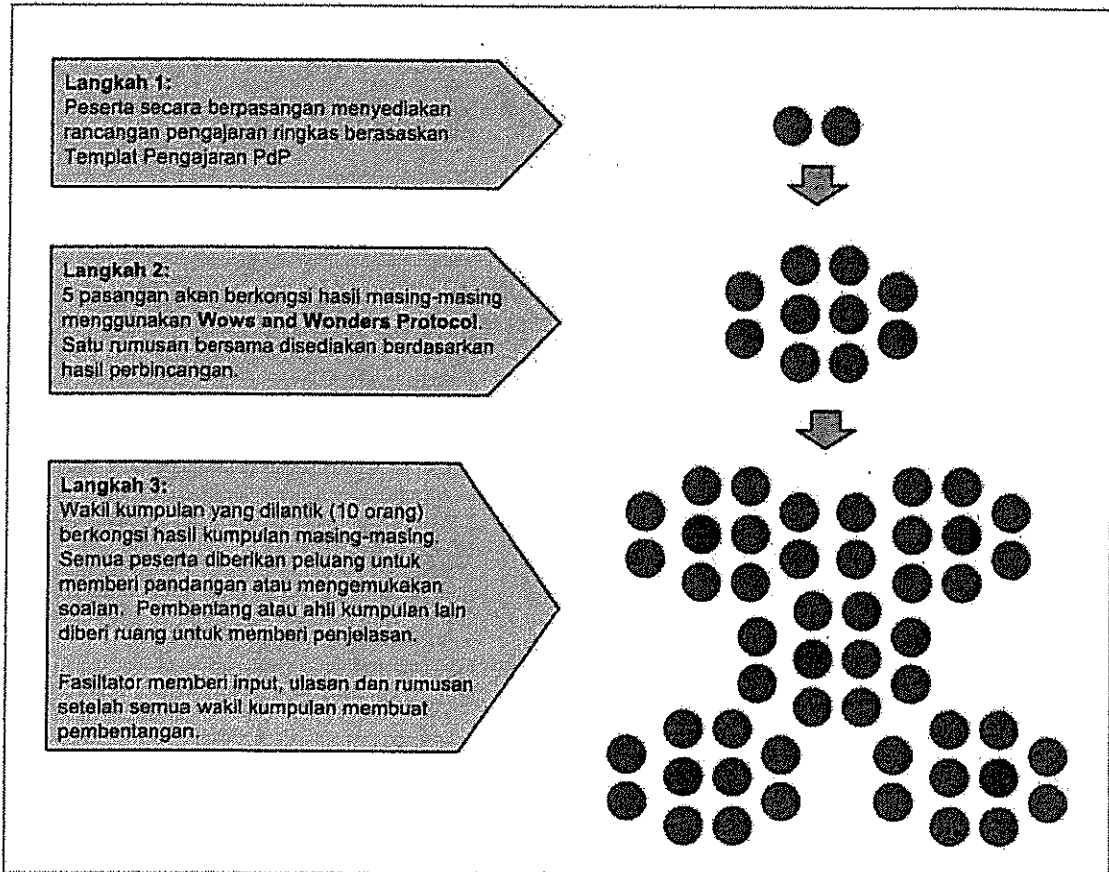
Pembentang: Seorang peserta akan berkongsi hasil kerja. (Anda boleh menggunakan jurnal yang menggambarkan pengalaman berkongsi program ini dengan pentabdir sekolah atau pengalaman memilih dan mendapatkan guru kolaboratif.)

Fasilitator: Seorang peserta (bukan pembimbing yang berkongsi hasil kerja) bertindak sebagai fasilitator. Tugasnya adalah untuk memastikan aktiviti berterusan dan berjalan lancar, bertindak juga sebagai penjaga masa dan memastikan setiap peserta berpeluang untuk menyumbangkan idea.

- ▶ Lima/Tiga minit diperuntukkan untuk Pembentang berkongsi hasil kerja. Ini termasuk penjelasan kepada rakan sejawat memahami isi kandungan dan matlamat dan perkara lain yang relevan.
- ▶ Lima/Tiga minit diperuntukkan untuk menilai hasil kerja bertulis secara senyap. Peserta berpeluang untuk menilai hasil kerja dan membuat nota ringkas atau soalan-soalan.
- ▶ Lima/Tiga minit diperuntukkan untuk perbincangan kumpulan. Rakan sejawat mengemukakan soalan berbentuk penjelasan tentang hasil kerja. Soalan-soalan ini akan dapat membantu pembaca memahami isi kandungan kerja dan bagaimana ianya telah dilaksanakan. (Soalan -soalan ini biasanya adalah soalan yang mudah dijawab oleh pembentang)
- ▶ Lima/Tiga minit diperuntukkan untuk WOWS (Rakan sejawat memberikan komen mengenai WOWS dari hasil kerja tersebut) Nyatakan kefahaman yang anda perolehi dari menilai hasil kerja tersebut. Gambarkan penjelasan isi kandungan hasil kerja tersebut kepada pembaca.
- ▶ Sepuluh/Tujuh minit diperuntukkan untuk WONDERS (Rakan sejawat memberi komen mengenai WONDERS dari hasil kerja tersebut) Apakah soalan-soalan yang berkaitan yang boleh diutarakan? Bagaimana ianya mempengaruhi tugas kita sebagai pembimbing? Apa yang boleh dilakukan untuk meningkatkan kualiti berinteraksi? (Pembentang berdiam diri dan mengambil nota)
- ▶ Lima ke sepuluh/tujuh minit diperuntukkan untuk MAKLUMBALAS (Pembentang mengambil masa untuk menilai apa yang telah di pelajari). Pembentang menilai semula bagaimana dia boleh menggunakan komen yang diberikan. Apa yang boleh menyebabkan dia berfikir secara berbeza mengenai hasil kerja yang dibentangkan.
- ▶ Lima/Tiga minit diperuntukkan untuk DEBRIEF didalam kumpulan kecil. Peserta dan pembentang menilai protokol yang dilalui. Apa yang berkesan dan berguna semasa melalui proses tersebut. Apa yang sukar? Bagaimana ianya boleh digunakan dalam situasi yang lain.

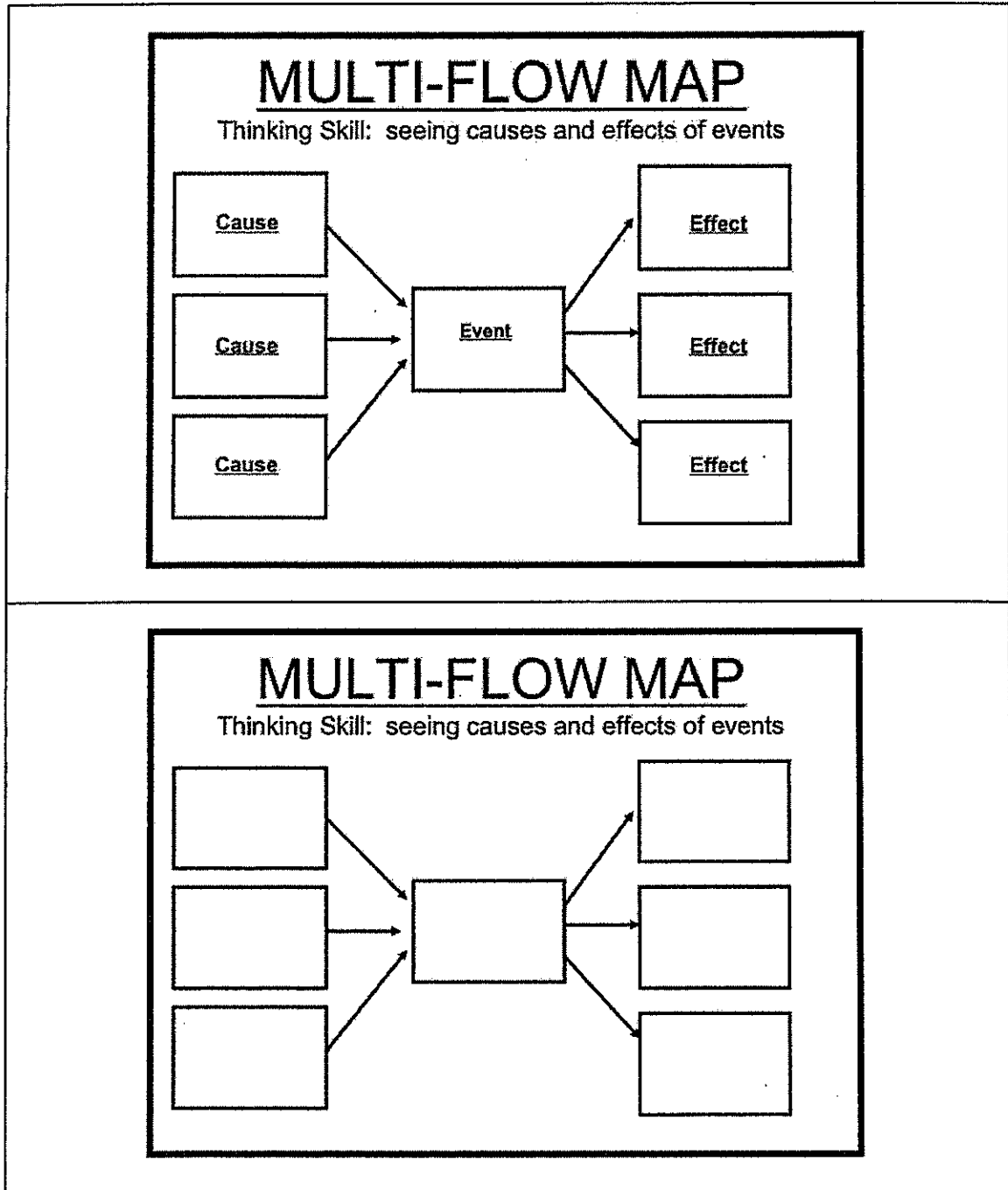
Toolkit M6.1: 'Wows & Wonders'

KmR: Toolkit Modul 6.1



Toolkit M6.1 'Multi-Flow Map'

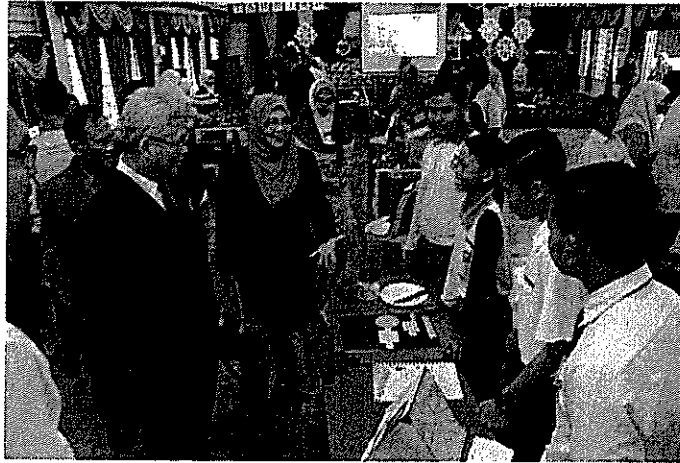
KmR: Toolkit Modul 6.1



Toolkit M6.1-A5-1: Kajian Kes - Klip Video

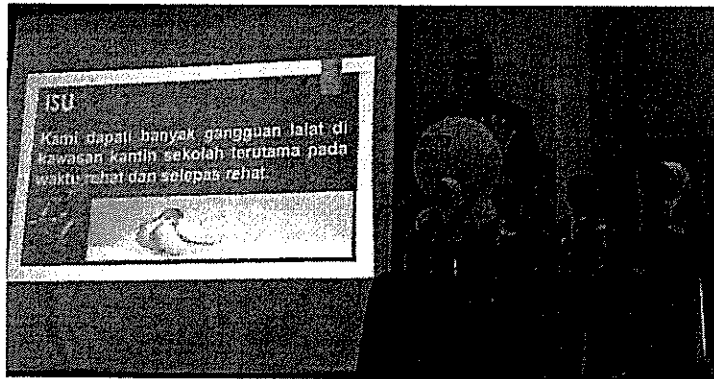
Kajian Kes 1: SMK Batu 4, Grik, Perak

Video memaparkan Projek KmR yang dilaksanakan di SMK Batu 4, Grik, Perak. Melibatkan murid dan guru Tingkatan 3.



Kajian Kes 2: SK Teluk Kemang, Port Dickson, N. Sembilan

Video memaparkan Projek KmR yang dilaksanakan di SK Teluk Kemang, Port Dickson, N. Sembilan. Melibatkan guru-guru tahun empat yang mengajar mata pelajaran B. Malaysia, B. Inggeris, Sains dan Matematik.



Toolkit M6.1-A5-2: Senarai Semak PBD*

Toolkit M6.1-A5-2

Persekitaran PdP dalam Klip Video	Elemen / Aspek PBD	Justifikasi

*Pentaksiran Bilik Darjah

KmR: Toolkit Modul 6.1

Toolkit M6.1-A5-3: Senarai Semak 6C (Kompetensi Pembelajaran Bermakna)

Senarai Semak Video (6C):

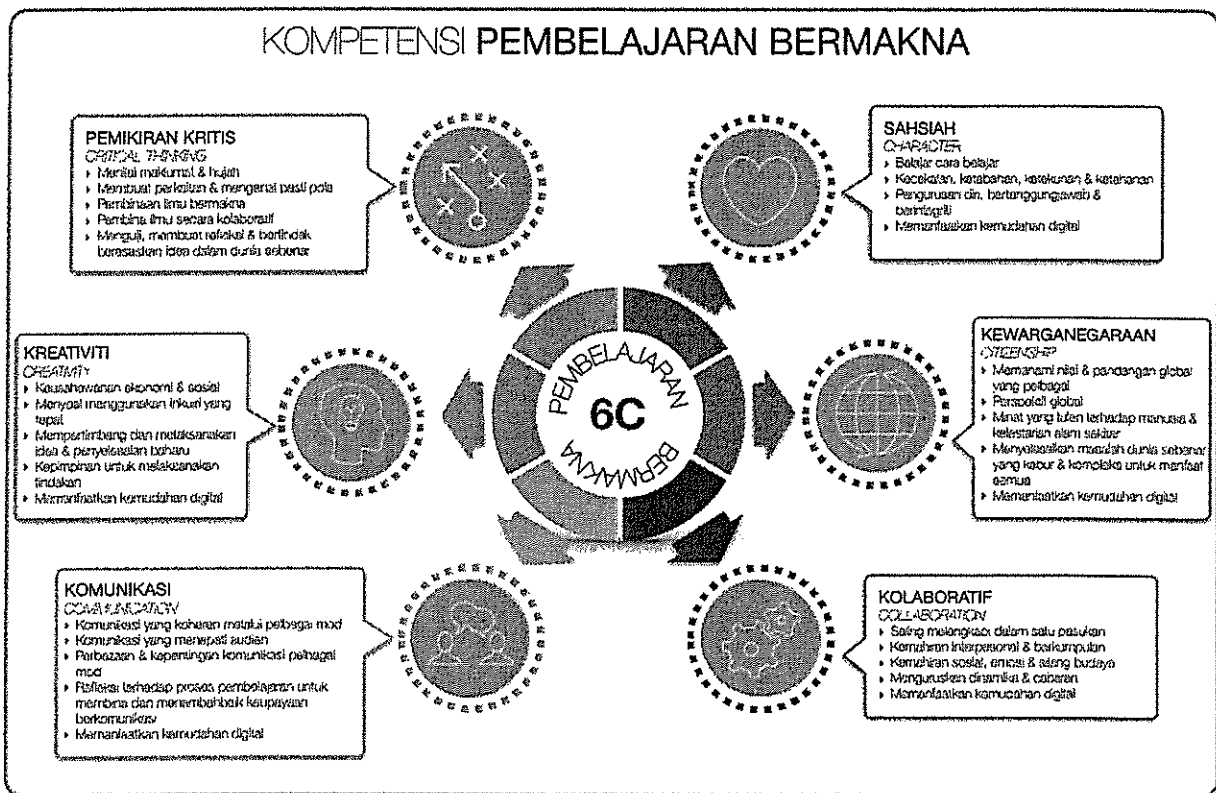
Persekitaran PdP dalam Klip Video	Elemen / Dimensi 6C	Justifikasi

KmR: Toolkit Modul 6.1

Toolkit M6.1-A5-3: Senarai Semak 6C (Kompetensi Pembelajaran Bermakna)

Kompetensi Pembelajaran Bermakna (Senarai Dimensi)

KmR: Toolkit Modul 6.1



Toolkit M6.1-A5-4: Senarai Semak Kaedah PdP

Senarai Semak Video (Kaedah PdP):

Persekitaran PdP dalam Klip Video	Kaedah PdP	Justifikasi

KmR: Toolkit Modul 6.1

Toolkit M6.1-A6-1: Templat Perancangan PdP - KmR

Tempat Perancangan PdP - KmR

Peringkat 1 : Hasil Diharapkan (Desired Result)

Hasil Pembelajaran (G):

- Apakah matlamat / objektif yang berkaitan atau relevan (Standard Kandungan dan Standard Pembelajaran) yang ingin dicapai melalui perancangan ini?

Kefahaman (U):

Pelajar akan memahami tentang ...

- Apakah 'the BIG Idea'?

Pemahaman Abadi (Enduring Understanding)

- Apakah kefahaman khusus yang diperlukan tentangnya?

Soalan Pencetus Idea (Essential Question) (Q):

- Apakah soalan provokatif (mencabar) yang boleh menarik minat, rasa ingin tahu dan memindahkan pembelajaran?

Pengetahuan (K):

Pelajar mengetahui ...

Kemahiran (S):

Pelajar boleh membuat / melakukan ...

- Apakah pengetahuan dan kemahiran penting akan diperolehi oleh pelajar melalui perancangan ini?
- Apakah yang pelajar boleh lakukan sebagai hasil daripada pengetahuan dan kemahiran tersebut?

Peringkat 2 : Bukti Pentaksiran (Assessment Evidence)

Tugasan Pembelajaran (Task):

- Apakah tugas pembelajaran yang boleh menunjukkan pencapaian pelajar dalam standard kandungan dan standard pembelajaran?
- Apakah kriteria yang digunakan untuk mentaksir pencapaian tugas pembelajaran yang pelajar tunjuk atau hasilkan?

Bukti (Evidence):

Pengumpulan bukti:

- proses
- produk

Merangkumi:

- Pengetahuan
- Kemahiran
- Kompetensi 6C

Bukti Lain:

- Bukti lain (kuiz, ujian, pemerhatian, jurnal) menunjukkan pencapaian pelajar.
- Bagaimanakah pelajar melakukan refleksi terhadap pembelajaran mereka?

Toolkit M6.1-A6-1: Templat Perancangan PdP - KmR









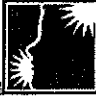





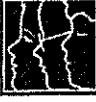

Peringkat 3: Pelan Pembelajaran

Aktiviti Pembelajaran (L):

- Where = *ke mana arah tujuan*
- Hook = *menarik minat pelajar*
- Equip = *membantu pelajar meneroka dan mengalami idea utama*
- Rethink = *menyediakan ruang dan peluang untuk pelajar berfikir dan menyemak terhadap kefahaman dan tugas*
- Evaluate = *pelajar diberi peluang menilai kerja mereka dan implikasinya*
- Tailored = *sesuai dengan kepelbagaian kebolehan atau latar belakang pelajar*
- Organized = *melibatkan pelajar secara maksimum dan berkesan*

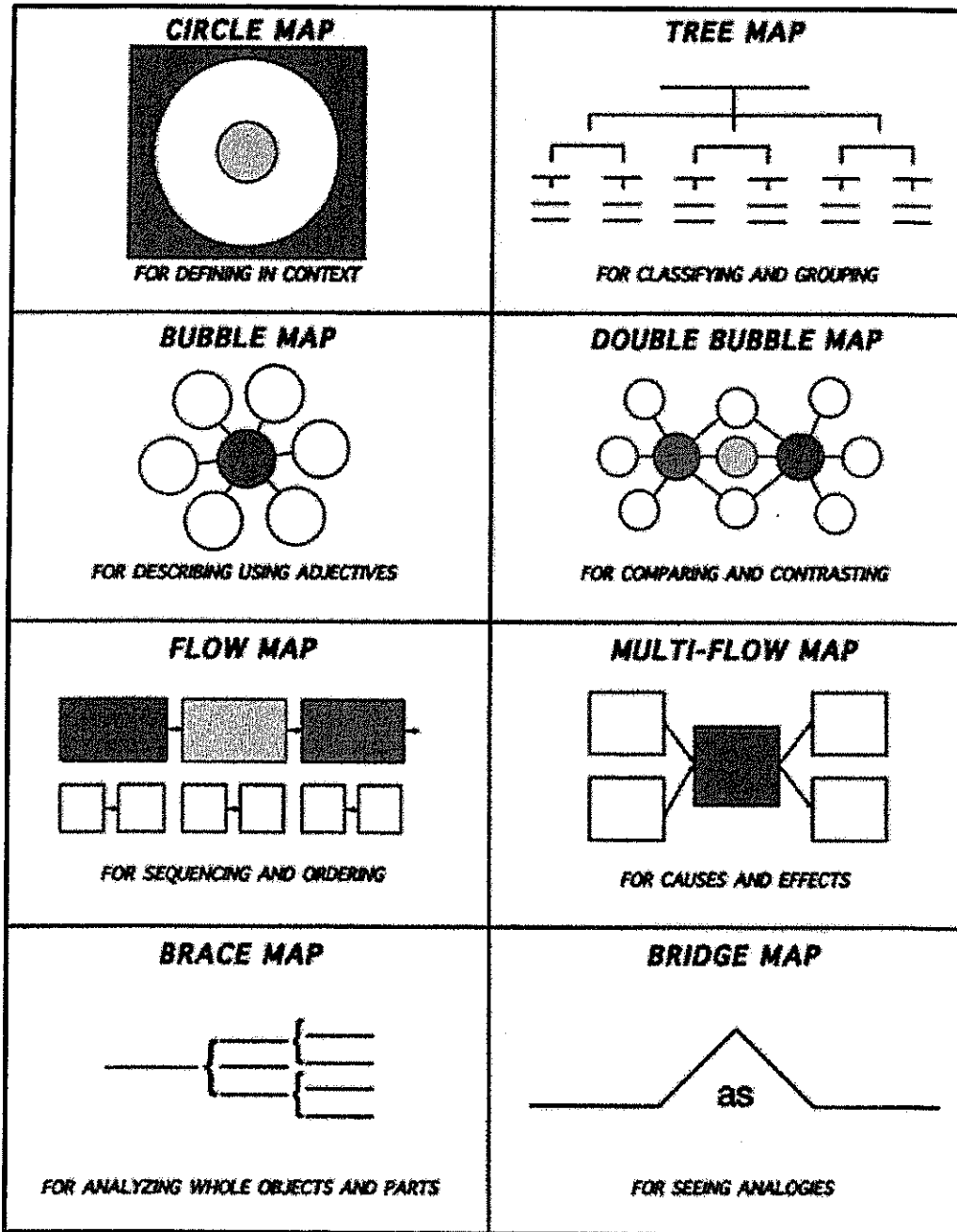
Toolkit M6.1-A6-1: Templat Perancangan PdP - KmR

H a b i t s o f M i n d

 <p>1. Persisting Stick to it! Persevering in task through to completion; remaining focused. Looking for ways to reach your goal when stuck. Not giving up.</p>	 <p>2. Managing impulsivity Take your Time! Thinking before acting; remaining calm, thoughtful and deliberative.</p>
 <p>3. Listening with understanding and empathy Understand Others! Devoting mental energy to another person's thoughts and ideas. Make an effort to perceive another's point of view and emotions.</p>	 <p>4. Thinking flexibly Look at it Another Way! Being able to change perspectives, generate alternatives, consider options.</p>
 <p>5. Thinking about your thinking. (Metacognition) Know your knowing! Being aware of your own thoughts, strategies, feelings and actions and their effects on others.</p>	 <p>6. Striving for accuracy Check it again! Always doing your best. Setting high standards. Checking and finding ways to improve constantly.</p>
 <p>7. Questioning and problem posing How do you know? Having a questioning attitude; knowing what data are needed and developing questioning strategies to produce those data. Finding problems to solve.</p>	 <p>8. Applying past knowledge to new situations Use what you Learn! Accessing prior knowledge; transferring knowledge beyond the situation in which it was learned.</p>
 <p>9. Thinking and communicating with clarity and precision Be clear! Striving for accurate communication in both written and oral form; avoiding over generalizations, distortions, deletions and exaggerations.</p>	 <p>10. Gather data through all senses. Use your natural pathways! Pay attention to the world around you Gather data through all the senses; taste, touch, smell, hearing and sight.</p>
 <p>11. Creating, imagining, and innovating Try a different way! Generating new and novel ideas, fluency, originality</p>	 <p>12. Responding with wonderment and awe. Have fun figuring it out! Finding the world awesome, mysterious and being intrigued with phenomena and beauty.</p>
 <p>13. Taking responsible risks Venture out! Being adventuresome; living on the edge of one's competence. Try new things constantly.</p>	 <p>14. Finding humor Laugh a little! Finding the whimsical, incongruous and unexpected. Being able to laugh at oneself.</p>
 <p>15. Thinking interdependently Work together! Being able to work in and learn from others in reciprocal situations. Team work.</p>	 <p>16. Remaining open to continuous learning I have so much more to learn! Having humility and pride when admitting we don't know; resisting complacency.</p>

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This and other resources available at www.habitsofmind.org

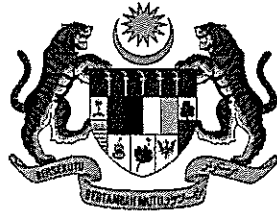
Toolkit M6.1-A6-1: Templat Perancangan PdP - KmR



MODUL SOKONGAN

(Pembelajaran Berasaskan Projek)





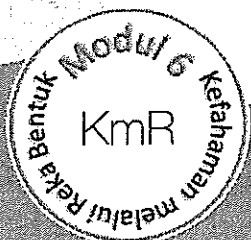
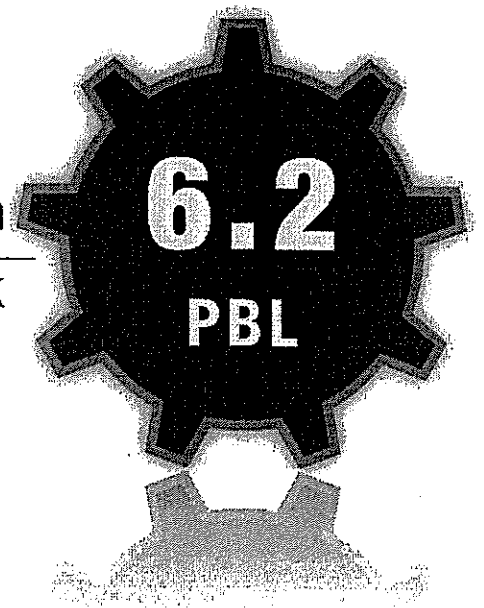
Program Transformasi Sekolah 2025 (TS25)

Kefahaman melalui Reka Bentuk

Connecting Heart and Mind to the Standard

KmR: Toolkit Modul 6.2

Modul Sokongan
Pembelajaran Berasaskan Projek



PENGGERAK PEMBELAJARAN BERMAKNA



Bahagian Pendidikan Guru
Kementerian Pendidikan Malaysia

Kandungan KmR - 6.2 (Toolkit)

AKTIVITI	TOOLKIT	HALAMAN
A1: Pengenalan PBL	▸ Toolkit - Carta KWL	2
	▸ Toolkit - Kitaran PBL (Asas PBL)	3
	▸ Toolkit - Templat Perancangan PdP - PBL	6
	▸ Toolkit M6.2-A1-1 (Project Vs PBL)	12
	▸ Toolkit M6.2-A1-2 (Artikel: 'Main Course, Not Dessert')	13
	▸ Toolkit M6.2-A1-3 (Artikel: '8 Essential for Project-Based Learning')	17
A2: Menetapkan hala tuju projek dan merangka Soalan Pencetus Idea	▸ Toolkit - Carta KWL	2
	▸ Toolkit - Kitaran PBL	3
	▸ Toolkit - Templat Thinking Maps	6
	▸ Toolkit - Templat Perancangan PdP - PBL	6
	▸ Toolkit M6.2-A2-1 (G.R.A.S.P.S)	21
A3: Merancang Penilaian (Kandungan & Kemahiran)	▸ Toolkit - Carta KWL	2
	▸ Toolkit - Templat Perancangan PdP - PBL	6
	▸ Toolkit M6.2-A3-1 (Senarai Semak Standard)	22
	▸ Toolkit M6.2-A3-2 (Templat Standard Kandungan dan Pembelajaran)	23
	▸ Toolkit M6.2-A3-3 (Templat Evidens dan Aktiviti)	24
	▸ Toolkit M6.2-A3-4 (Konsep Rubrik)	25
A4: Pemetaan dan Pengurusan Pelaksanaan PBL	▸ Toolkit - Carta KWL	2
	▸ Toolkit - Templat Perancangan PdP - PBL	6
	▸ Toolkit - Senarai Semak Pengurusan Projek	26
	▸ Toolkit M6.2-A4-2 (Peranan Rubrik dalam PBL)	26
	▸ Toolkit M6.2-A4-3 (Konsep Integrasi Dalam PBL)	29
A5: Melaksanakan PBL Secara Bersepadu	▸ Toolkit - Carta KWL	2
	▸ Toolkit - Templat Perancangan PdP - PBL	6
	▸ Toolkit - Senarai Semak Pengurusan Projek	26
	▸ Toolkit M6.2-A5-1 (Contoh Garis Masa PBL)	30
	▸ Toolkit - 6C (Kompetensi Pembelajaran Bermakna)	31

Toolkit M6.2: Carta KWL

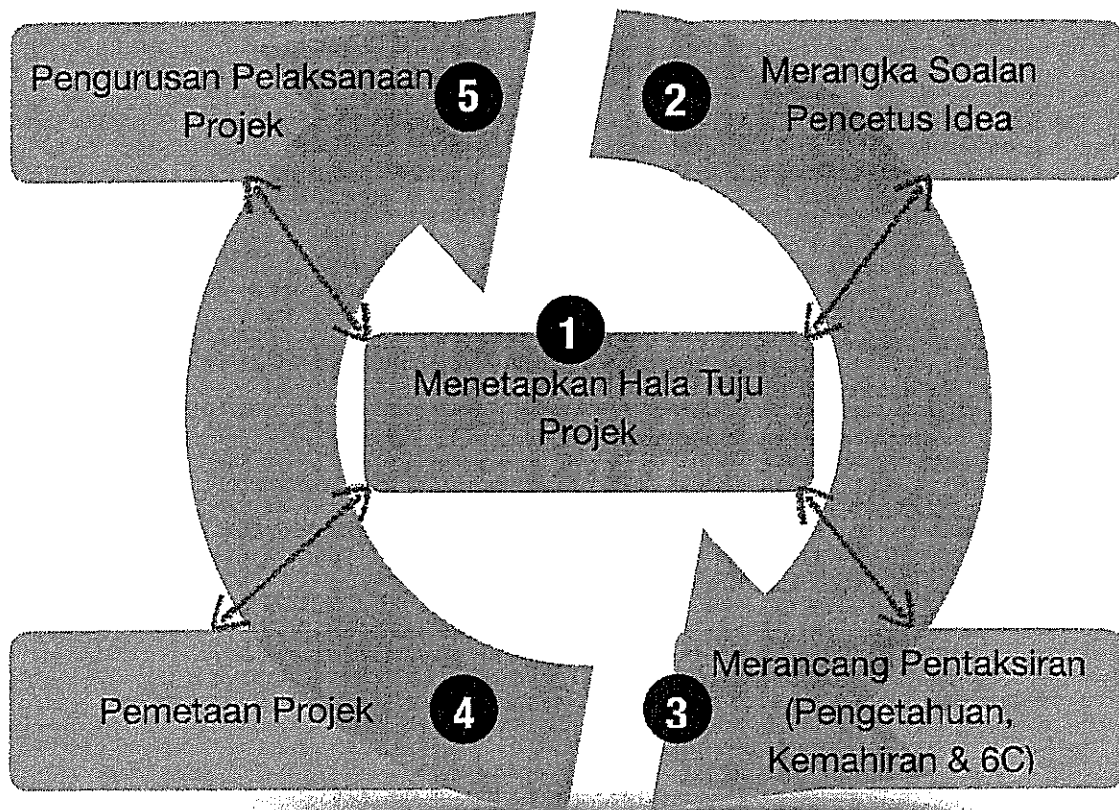
KmR: Toolkit Modul 6.2

KWL		
What You Know	What You Want to Know	What You Have Learned

Toolkit M6.2: Kitaran PBL

Pembelajaran Berasaskan Projek (PBL)

Pengenalan



Kitaran PBL

Langkah 1: Menetapkan Hala Tuju Projek

Projek yang berjaya bermula seawal menetapkan hala tuju projek. Guru mereka bentuk projek untuk membantu murid menguasai pengetahuan dan kemahiran.

PBL adalah kaedah pengajaran yang menarik tetapi mencabar. Guru perlu menyediakan visi, struktur dan kefahaman mendalam tentang proses pembelajaran. Projek yang berkesan tidak berlaku secara kebetulan tetapi melalui perancangan rapi yang memberi penekanan kepada aspek-aspek berikut:

- produk yang bermakna dan berfikirah
- penilaian pencapaian (proses dan produk)
- aktiviti pembelajaran autentik

Toolkit M6.2: Kitaran PBL

Penetapan hala tuju projek pada peringkat awal membantu guru merancang dan menerangkan tujuan projek kepada murid. Sekiranya murid memahami pelaksanaan projek, proses pembelajaran menjadi lebih bermakna, maklumat tersimpan lebih lama dalam ingatan, dapat mengaplikasikan pengetahuannya dalam kehidupan sebenar dan bermotivasi tinggi.

Langkah 2: Merangka Soalan Pencetus Idea

Soalan Pencetus Idea (SPI) yang berkesan menjadikan sesuatu projek menarik minat, kompleks dan bermasalah. Murid perlu menjalankan pelbagai aktiviti dan mensintesis pelbagai jenis maklumat untuk menjawab SPI. Seperkara lagi, SPI perlu memberi perhatian kepada isu-isu berkaitan dengan kehidupan sebenar.

Langkah 3: Merancang Pentaksiran (Kandungan & Kemahiran)

Pentaksiran dalam PBL yang bersifat autentik memberi peluang kepada guru untuk menilai murid dalam pelbagai aspek yang melibatkan:

- pengetahuan
- kemahiran
- kompetensi pembelajaran bermakna

Pentaksiran dalam sesuatu projek perlu dirancang sebelum projek bermula. Pentaksiran yang dirancang hendaklah merangkumi proses pembelajaran yang dialami oleh murid (*assessment as learning & assessment for learning*) dan produk yang dihasilkan di akhir projek (*assessment of learning*).

Semasa merancang pentaksiran, guru harus memberi penekanan kepada aspek berikut:

- Standard Kandungan
- Standard Pembelajaran
- Standard Prestasi
- Kompetensi Pembelajaran Bermakna (6C)
- Kaedah pengumpulan maklumat (bukti pencapaian murid)
- Alat penilaian yang sesuai

Amalan pentaksiran yang berkesan mempunyai ciri-ciri berikut:

- Murid perlu dimaklumkan tentang apa yang mereka perlu lakukan
- Kriteria yang digunakan untuk menilai pencapaian murid

Langkah 4: Pemetaan Projek

Pemetaan projek merujuk kepada usaha mengenal pasti keperluan pengajaran dan pembelajaran, perancangan aktiviti, peruntukan masa, dan penyediaan sumber.

Toolkit M6.2: Kitaran PBL

Pemetaan memainkan peranan penting dalam menentukan keberkesanan projek melalui dua aspek utama, iaitu:

- Struktur
- Hala Tuju dan Sokongan

Struktur. Perbezaan di antara struktur pemetaan projek berdasarkan *Backward Design* dengan struktur penyediaan rancangan mengajar secara tradisional.

Rancangan Mengajar (Tradisional)	Pemetaan Projek (Reka Bentuk Ubd)
Menentukan hasil pembelajaran	Mengenal pasti hasil pembelajaran
↓	↓
Merancang aktiviti P&P dan tugas	Menetapkan bukti hasil untuk dinilai
↓	↓
Menentukan penilaian	Merancang aktiviti P&P

Hala Tuju dan Sokongan. Pemetaan membantu guru mengenal pasti kemahiran yang perlu dikuasai dan ditunjukkan oleh murid, menentukan tempoh masa projek, dan mengumpul sumber yang diperlukan untuk menyokong aktiviti P&P yang kritikal dalam projek. Langkah-langkah utama dalam menghasilkan perancangan projek yang berkesan:

- Menguruskan tugas dan aktiviti
- Memulakan projek
- Mengumpul sumber
- Menyediakan jadual pelaksanaan

Langkah 5: Pengurusan Pelaksanaan Projek

Guru perlu memiliki kemahiran mengurus untuk merancang dan melaksanakan projek dengan jayanya. Kemahiran sebagai pendorong (*activator*) diperlukan untuk membantu murid dalam proses penemuan dan membuat refleksi semasa melaksanakan projek.

Guru boleh merancang sesuatu projek tanpa melibatkan murid. Namun, keyakinan diri murid akan meningkat jika mereka diberi peluang untuk terlibat dalam perancangan projek. Salah satu strategi berkesan untuk melibatkan murid ialah berkongsi matlamat dan konteks projek pada peringkat awal. Sesi refleksi oleh murid dan perkongsian dapatan di akhir projek dalam kalangan murid memainkan peranan penting dalam mencapai hasil pembelajaran sesuatu projek.

Toolkit M6.2: Templat Perancangan PdP - PBL

Perancangan Pengajaran dan Pembelajaran

Nama :		
Sekolah :		
Tajuk ⁽¹⁾ :		
Ringkasan (Project Overview) ⁽²⁾ :		
Mata Pelajaran ⁽³⁾ :	<input type="checkbox"/> B. Malaysia <input type="checkbox"/> Matematik <input type="checkbox"/> _____ <input type="checkbox"/> _____	<input type="checkbox"/> B. Inggeris <input type="checkbox"/> Sains <input type="checkbox"/> _____ <input type="checkbox"/> _____
Tahun :		
Masa :		
Standard ⁽⁴⁾ :	Standard Kandungan :	
	Standard Pembelajaran :	
	Standard Prestasi :	
Hasil Pembelajaran :	1. 2. 3.	
The Big Idea :		
Soalan Pencetus Idea ⁽⁵⁾ :	1. 2. 3.	
Rancangan Pentaksiran: ⁽⁶⁾		
	Tugasan	Jenis/Alat Pentaksiran
1.		
2.		
3.		
Langkah Pengajaran ⁽⁷⁾ :	1. 2. 3. 4.	
Sumber ⁽⁸⁾ :		

Toolkit M6.2: Templat Perancangan PdP - PBL

Huraian Templat Perancangan PdP - PBL

KMR: Toolkit Modul 6.2

Perkara	Huraian
1. Tajuk atau Tema	<p>Perancangan Unit P&P boleh disediakan berdasarkan tajuk atau tema. Jika bersifat tematik, murid meneroka isi kandungan pelajaran secara lebih menyeluruh dan memberi peluang kepada murid meneroka maklumat berkaitan dengan tema berkenaan. Murid perlu mengakses maklumat mengumpul maklumat, memproses maklumat dan menilai maklumat yang terkini daripada pelbagai sumber serta tidak menjadikan guru sebagai sumber maklumat utama.</p>
2. Ringkasan Rancangan Unit P&P	<p>Ringkasan pakej aktiviti pengajaran dan pembelajaran merupakan gambaran keseluruhan aktiviti-aktiviti pengajaran dan pembelajaran yang hendak dilaksanakan di dalam sesuatu Perancangan Unit.</p> <p>Secara umum, seseorang guru boleh merancang satu pakej aktiviti bagi penggunaan selama satu bulan (empat minggu) pengajaran-pembelajaran.</p> <p>Berdasarkan gambaran keseluruhan kandungan ilmu pengetahuan dan produk/projek yang akan dihasilkan oleh murid yang terdapat di dalam ringkasan pakej ini, guru boleh merancang keperluan bahan sumber yang diperlukan lebih awal bagi memudahkan murid melaksanakan aktiviti pembelajaran sendiri.</p> <p>Pakej aktiviti pengajaran-pembelajaran ini juga boleh dijadikan salah satu bahan utama dalam kontrak pembelajaran murid dengan pihak ketiga (ibu bapa/penjaga).</p>
3. Bidang Subjek	<p>Selain daripada itu, murid juga boleh membuat hubung kait dengan pengetahuan yang diperolehi daripada mata pelajaran lain seperti mata pelajaran Sains sewaktu mempelajari Bahasa Melayu. Pendidikan yang dapat menjana kemahiran murid untuk membuat hubung kait ilmu pengetahuan dan maklumat yang pelajari sebegini boleh merangsang minat belajar dalam kalangan murid. Murid juga boleh mengaplikasikan ilmu pengetahuan sebagai ilmu gunaan dalam kehidupan seharian.</p> <p>Perancangan topik-topik berdasarkan tema yang merentasi kurikulum, jika dibuat secara koheren dengan mata pelajaran lain yang dimuridi oleh murid di sekolah, dapat mendidik ke arah menjadikan ilmu pengetahuan/maklumat yang diperolehi sebagai ilmu gunaan dalam kehidupan seharian. Dan murid tidak mempelajari sesuatu mata pelajaran secara terpisah.</p>

Toolkit M6.2: Templat Perancangan PdP - PBL

<p>4. Standard Kandungan dan Standard Pembelajaran</p>	<p>Standard Pembelajaran merupakan hasil pembelajaran yang perlu dicapai oleh murid dalam setiap unit pembelajaran.</p> <p>Standard Pembelajaran dipilih daripada Dokumen Kurikulum Standard Sekolah Rendah (KSSR) terbitan Bahagian Pembangunan Kurikulum, Kementerian Pelajaran Malaysia.</p> <p>Standard Pembelajaran yang dipilih dan disepadankan dengan tema dan pakej aktiviti yang dirancang dalam Perancangan Unit P&P lazimnya lebih daripada dua Standard Pembelajaran. Ini memberi makna iaitu pada akhir setiap prosedur aktiviti pengajaran-pembelajaran untuk tempoh satu waktu pembelajaran murid (<i>student learning time</i>) di sekolah dan di rumah, guru perlu mencatat beberapa Standard Pembelajaran yang perlu dicapai.</p> <p>Pencapaian Standard Pembelajaran oleh murid ini membantu guru menjadi fasilitator yang berkesan kepada murid di samping dapat menilai dan mentaksiran proses dan produk/projek yang dihasilkan oleh murid untuk tujuan Pentaksiran Berasaskan Sekolah yang berterusan dan holistik.</p>
<p>5. Soalan Pencetus Idea (SPI)</p>	<p>Soalan Pencetus Idea (SPI) berperanan untuk mencetus semangat ingin tahu dan merangsang pembelajaran berdaya fikir dalam kalangan murid.</p> <p>SPI dapat membantu hala tuju murid untuk mencari, mengakses, mengumpul, dan memproses maklumat yang diperlukan untuk menjawab persoalan yang ditimbulkan. SPI juga membantu murid menyaring maklumat yang relevan dengan produk yang hendak dihasilkan oleh murid dalam proses pembelajaran mereka semasa melaksanakan projek.</p> <p>Pembelajaran berteraskan persoalan utama dalam strategi Pembelajaran Berasaskan Projek ini memupuk kemahiran penyelesaian masalah di dalam kalangan murid. Kemahiran penyelesaian masalah merupakan salah satu kemahiran Abad Ke-21 yang perlu dimiliki oleh murid kini.</p> <p>Unsur membuat kajian juga boleh dibudayakan kepada murid melalui persoalan utama yang terdapat dalam Perancangan Unit. Budaya membuat kajian dan penyelidikan merupakan asas ke arah inovasi. Budaya sebegini boleh berakar umbi dengan kukuh jika dimulakan pada peringkat persekolahan dengan cara diintegrasikan dalam aktiviti pengajaran dan pembelajaran di sekolah.</p> <p>Persoalan utama bagi sesuatu perkara boleh mencetuskan 'keraguan demi keraguan' dan menggalakkan pemikiran aras tinggi dalam kalangan murid.</p>

Toolkit M6.2: Templat Perancangan PdP - PBL

<p>6. Rancangan Pentaksiran</p>	<p>Pentaksiran dan penilaian terhadap pencapaian murid perlu dilihat berdasarkan proses dan produk/projek yang dihasilkan secara berterusan dan holistik. Adalah tidak wajar jika rumusan pencapaian seseorang murid hanya dibuat pada suatu sesi tertentu yang ditetapkan oleh pengurusan sekolah.</p> <p>Produk/projek yang dihasilkan murid dan dikumpulkan di dalam portfolio pembelajaran serta persembahan yang dilakukan oleh murid merupakan <i>objective evidence</i> kepada keupayaan dan kebolehan sebenar seseorang murid. Bagi mengelakkan produk yang dihasilkan oleh murid dibuat oleh orang lain guru menyediakan suatu instrument penilaian tertentu yang mencatat proses dan pengalaman pembelajaran murid. Pemberatan tertentu kepada proses dan produk/projek juga boleh disediakan oleh guru supaya rumusan markah yang diberi benar-benar tepat dan adil.</p> <p>Pentaksiran dan penilaian sumatif yang memfokuskan kepada fakta sudah tidak relevan lagi pada zaman maklumat di hujung jari sekarang.</p>
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Toolkit M6.2: Templat Perancangan PdP - PBL

<p>7. Langkah-langkah Pengajaran</p>	<p>Prosedur merupakan perincian langkah-langkah untuk melaksanakan aktiviti pengajaran dan pembelajaran yang telah dicatat di dalam ringkasan pakej aktiviti mengikut waktu pembelajaran mingguan murid.</p> <p>Di dalam perincian langkah-langkah tersebut, guru menetapkan matlamat tugas /produk /projek yang perlu dihasilkan oleh murid. Secara keseluruhan semua urutan langkah-langkah dan produk pembelajaran menunjukkan kesinambungan tugas terarah kepada murid.</p> <p>Sebagai seorang fasilitator, beberapa perkara perlu diambil kira semasa merancang urutan langkah-langkah dalam komponen prosedur ini supaya menjurus ke arah pencapaian standard pembelajaran dan keperluan pendidikan masa kini, iaitu:</p> <ul style="list-style-type: none"> ▪ Memberi peluang dan ruang kepada murid untuk mengakses maklumat sebanyak mungkin ▪ Memilih aktiviti produk /projek yang dapat memenuhi kecerdasan pelbagai murid ▪ Mengambil kira gaya pembelajaran murid supaya mereka terlibat secara aktif dan bermakna sepanjang pelaksanaan projek ▪ Mengaplikasi Kemahiran Abad ke-21 seperti kemahiran belajar, kemahiran berfikir, kemahiran ICT, kemahiran interpersonal, kemahiran sosial, kemahiran bekerja sepasukan, dan kemahiran menyelesaikan masalah di dalam proses pembelajaran ▪ Membantu guru membuat pentaksiran dan penilaian secara berterusan dan holistik kepada pencapaian dan keupayaan sebenar murid berdasarkan proses dan produk/projek yang dihasilkan oleh murid (Pentaksiran Berasaskan Sekolah) <p>Bagi memenuhi tuntutan pihak pengurusan sekolah yang ingin menyemak sasaran kerja harian, guru boleh menyalin rancangan pengajaran harian daripada aktiviti pengajaran-pembelajaran yang terdapat di dalam prosedur mingguan di atas.</p>
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Toolkit M6.2: Templat Perancangan PdP - PBL

8. Sumber	<p>Guru mengenal pasti bahan sumber yang digunakan dalam sesuatu Perancangan Unit P&P pada peringkat perancangan lagi.</p> <p>Penyediaan bahan sumber yang rapi, teratur dan relevan boleh membantu guru melaksanakan PBL dengan berkesan. Guru juga lebih profesional kerana dapat memainkan peranan sebagai fasilitator yang berupaya membantu memupuk potensi murid.</p> <p>Selain daripada itu, tempahan untuk menggunakan kemudahan multimedia dan digital lain boleh dibuat awal melalui guru Penyelaras Makmal Komputer dan kepada guru Pusat Sumber.</p>
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Toolkit M6.2-A1-1: Projek vs PBL

Projek . . .	PBL . . .
Boleh dilaksanakan di rumah tanpa bimbingan guru dan kolaborasi pasukan.	Memerlukan bimbingan guru dan kolaborasi kumpulan.
Boleh dirancang secara terperinci oleh guru pada sehelai kertas.	Melibatkan banyak "Need to Knows" pada pihak guru dan murid.
Digunakan tahun demi tahun, dan lazimnya menumpukan kepada produk (bahan, alatan dan lain-lain).	Dilaksanakan pada masanya, kompleks, merangkumi pelbagai kemahiran dan pengetahuan, dan memerlukan pasukan profesional terlatih (guru) serta peruntukan masa untuk merancang dan melaksanakannya.
Tugas guru bermula terutamanya selepas sesuatu projek selesai/tamat.	Tugas guru bermula sebelum projek bermula.
Murid tidak mempunyai banyak peluang untuk membuat pilihan sepanjang projek dilaksanakan.	Murid diberi peluang yang luas untuk membuat pilihan sepanjang projek dalam ruang lingkup yang disediakan di bawah bimbingan guru.
Berasaskan arahan dan dilaksanakan 'seperti tahun lalu'.	Berasaskan Soalan Pencetus Idea yang memandu semua aspek pembelajaran - mencetuskan keperluan ingin tahu.
Penilaian dilakukan berdasarkan persepsi guru yang mungkin atau tidak dikongsikan dengan murid.	Penilaian dilaksanakan berasaskan rubrik yang jelas khusus untuk projek tersebut.
Tertutup: setiap projek mempunyai matlamat yang sama.	Terbuka: murid membuat pilihan untuk menentukan hasil (outcome) dan laluan kajian.
Tidak boleh diaplikasi dalam kehidupan untuk menyelesaikan masalah sebenar.	Boleh menyediakan penyelesaian dalam kehidupan sebenar walaupun ia mungkin tidak dapat dilaksanakan.
Tidak relevan secara khusus terhadap kehidupan murid.	Sangat relevan dengan kehidupan semasa atau masa depan murid.
Tidak relevan dengan pekerjaan dalam kehidupan sebenar.	lanya seakan atau menyerupai perkerjaan dalam dunia sebenar.
Tidak merangkumi senario dan maklumat latar belakang atau berasaskan peristiwa yang telah diselesaikan.	Senario atau simulasi adalah sebenar, menyeronokkan dan tepat pada masanya.
Disediakan berasaskan sesuatu alat bukannya untuk menjawab persoalan autentik.	Menggunakan teknologi, alat dan amalan yang digunakan di dalam dunia pekerjaan sebenar. Murid memilih alat berdasarkan keperluan masing-masing.
Berlaku selepas pembelajaran sebenar telah berlaku - hanya sebagai 'pencuci mulut'.	lanya adalah proses pembelajaran sebenar yang dilalui oleh murid.
Hasilnya untuk simpanan.	Hasilnya dikongsi (showcase) dengan audien termasuk pihak di luar bilik darjah.
Segalanya sama.	lanya berbeza.

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Toolkit M6.2-A1-2:

The Main Course, Not Dessert

The Main Course, Not Dessert

*How Are Students Reaching 21st Century Goals?
With 21st Century Project Based Learning*

John Larmer and John R. Mergendoller
Buck Institute for Education 2010



As the volume level rose, Christina tried once again to convince her group that she was right about how Guatemala should try to increase tourism. "We can't focus so much on the history and the jungle! We should show more on our website about the other reasons! How about the beaches—remember that chart we saw about how warm the weather is in winter? Or the low prices—remember the exchange rate?"

Her teammates listened, and seemed to be wavering. Maybe she was right and they had been getting lost in the details of their historical and environmental research. The point, after all, was to answer the question, "What makes a place a destination?" and create an effective web page for their client nation, not to show off how much they knew about the Mayan ruins or howler monkey habitat. But the presentation deadline was approaching, and their timetable called for finishing the draft of their proposal by Monday. As they paused for a "process check," they decided to revise their work plan to allow time to discuss Christina's ideas.

Around them, the social studies classroom was a flurry of activity. Some students worked their laptops, checking for messages from the travel agency or doing more research on the nation their group had chosen. Others were figuring out the fine points of web page design as they studied professionally-done examples and the rubric their teacher had given them. A few students were gathered around the teacher, who was answering questions to clarify their understanding of time zones. When the lunch bell rang, no students left the room.

The project above took place at New Utrecht High School in Brooklyn, New York, in the Academy of Hospitality and Tourism, using new project-based

curriculum materials from the National Academy Foundation and the Pearson Foundation. According to teacher Griselda Vile, "Students love the project. They get to share their prior knowledge and have more choice, so they take ownership." She also notes that her ninth graders are motivated to do high-quality work because they know a panel of adults from outside the classroom is going to be their audience and will ask tough questions. And she knows from conversations that her students remember what they are learning about history, geography and world cultures as they build collaboration, problem-solving, communication and technological skills.

Although projects have been a recognized part of instruction for nearly 100 years (Kirkpatrick, 1918), teachers have too frequently traded apparent student interest and excitement for in-depth learning. Our purpose in this article is twofold: 1) distinguish "main course" project based learning (PBL) from the short duration and intellectually lightweight activities and projects common to many classrooms; and 2) argue that PBL is an essential tool for preparing students to reach 21st century educational goals and succeed in the 21st century.

Projects vs. Project Based Learning

Most readers of this article have done projects as students, and may now be doing these with their own classes. In a typical unit of instruction containing a project, a teacher covers a topic with a combination of lectures, textbook readings, worksheets, and perhaps short activities, video programs and website visits. Then, students are given an assignment to do on their own at home:

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say, to create a poster about a disease, showing its effects on the body, how the body reacts, and how it is treated. These “projects” are displayed in the classroom, but are not formally presented or discussed in detail. The unit culminates with a test emphasizing factual recall.

As Expeditionary Learning Director of Instruction Ron Berger puts it, the teacher covers the main course of study in the usual way, and then a short “project” is served up for dessert. In 21st Century Project Based Learning it is the *project* that is the main course—it contains and frames curriculum and instruction. Consider, in contrast to the “dessert” projects, the rigor and depth of the Project Based Learning described below.

In a math class at City Arts and Technology High School in San Francisco, students in teacher Stephanie Lundin’s “Greenbacks or Greenspace?” project use matrices and linear algebra to decide how to best use some vacant land in the city for either recreation or development. In the role of consultants to the mayor of San Francisco, student teams present their recommendation in the form of a formal written proposal, including an explanation of the math used to solve for the most cost-effective land allocation.

At Beachwood High School in Ohio, students in Greg Perry and Jason Ledonne’s Marketing class produce a showcase at the Community Center designed to raise awareness of environmental responsibility. The “Green Dream” project has become a massive community-wide event every April since 2007, this year drawing 2500 people to see over 70 local businesses and organizations display their environmentally-friendly practices, services and products. Proceeds from the event go toward funding an “ultimate green classroom” with solar panels and an outdoor learning environment.

At the ARISE Academy in Oakland, California, students in the 11th grade Humanities class experience a multifaceted project focusing

on the question, “What creates change and a movement?” They learn about the history of social movements in the U.S. and choose a civil rights topic for a research paper. In their service learning internship, students conduct some sort of social action related to their topic. In partnership with the San Francisco School of Digital Filmmaking, they produce a short film about themselves, their families, and/or people in their community in relation to civil rights. Finally, students present their work to a committee, answering questions about the choices they made, their knowledge of the topic, and their reflections on what was gained by doing the project.

**“This is “main course”
Project Based Learning where
students learn the material
from completing the project.”**

These are not projects where students simply apply what they have learned from traditional instruction. This is “main course” Project Based Learning where students learn the material from completing the project. A “main course” project:

- is intended to teach significant content. Goals for student learning are explicitly derived from content standards and key concepts at the heart of academic disciplines.
- requires critical thinking, problem solving, collaboration, and various forms of communication. To answer a Driving Question and create high-quality work, students need to do much more than remember information. They need to use higher-order thinking skills and learn to work as a team. They must listen to others and make their own ideas clear when speaking, be able to read a variety of material, write or otherwise express themselves in various modes, and make effective presentations. These skills, competencies and habits of mind are often known as “21st century skills,” because they are

prerequisite for success in the 21st century workplace (Partnership for 21st Century Skills, 2008).

- **requires inquiry as part of the process of learning and creating something new.** Students ask questions, search for answers, and arrive at conclusions, leading them to construct something new: an idea, an interpretation, or a product.
- **is organized around an open-ended Driving Question.** This focuses students' work and deepens their learning by framing important issues, debates, challenges or problems.
- **creates a need to know essential content and skills.** Project Based Learning reverses the order in which information and concepts are traditionally presented. A typical unit with a "dessert" project—and most instruction—begins by presenting students with knowledge and concepts and then, once gained, giving students the opportunity to apply them. Project Based Learning begins with the vision of an end product or presentation. This creates a context and reason to learn and understand the information and concepts.
- **allows some degree of student voice and choice.** Main course Project Based Learning is not a paint-by-the-numbers experience. Students learn to work independently and take responsibility when they are asked to make choices about how they work and what they create. The opportunity to make choices, and to express their learning in their own voice, also helps to increase students' educational engagement.
- **includes processes for revision and reflection.** Students learn to give and receive feedback in order to improve the quality of the products they create, and are asked to think about what and how they are learning.
- **involves a public audience.** Students present their work to other people, beyond their classmates and teacher – in person or online. This "ups the stakes," increasing students' motivation to do high-quality work, and adds to the authenticity of the project.

Project Based Learning is a filling meal of rich content knowledge and the skills valued by employers in a globalized economy (Wagner, 2008). If we wish to prepare a generation of students who can solve real-world problems, we must give them real-world problems to solve. If we want to graduate students who can manage their time and collaborate with others, we must give them guidance and practice managing their time

If we wish to prepare a generation of students who can solve real-world problems, we must give them real-world problems to solve.

and collaborating with others. The older, dessert model of "doing a project" may taste sweet, but it's not going to enable 21st century students reach 21st century learning goals.

Helping the Chefs Meet 21st Century Goals for Students

A minority of individual teachers across the country are doing the hard work of planning and cooking up nutritious main course Project Based Learning, and preparing their students to reach 21st century goals. However, these efforts are not reinforced by similar practices in other classrooms across the school, where the majority of students never get this opportunity. While it is possible to do PBL in almost any school environment, it is most feasible and most effective when certain school conditions are in place. Looking at school models where all teachers are successfully creating main course PBL (e.g., Envision Schools, New Technology High Schools, Expeditionary Learning Schools, High Tech High and Middle Schools, EdVisions Schools, etc.), we find they have the following features in common.

- **Common values, definitions and assumptions** about what constitutes good instruction. Main course Project Based Learning is considered the norm by teachers and students.
- **Project libraries** containing a range of projects to use or adapt. Since these lie at the heart of main course Project Based Learning, they are vetted for quality, road-tested in classrooms and made easily accessible online with complete resources and instructions.
- **Professional development and coaching** from experienced Project Based Learning teachers. This includes materials and workshops on designing projects, site visits to model schools where main course PBL is thriving, and sustained support over time from peer and instructional coaches.
- **Supportive school policies and practices** that improve PBL quality and ease of use. In addition to—and as an effective form of—professional development, schools with main course Project Based Learning provide plenty of time for teachers to meet with colleagues to plan projects, critique and fine-tune lessons, and gather and share resources. Common, calibrated rubrics for 21st century skills are used by the whole school, and grading policies and practices are standardized to account for the use of PBL. The facilities, materials, and technology for projects are readily available, and shared project calendars make it possible to schedule project components in different classes without conflict. Daily and weekly schedules are adjusted to provide longer and more flexible blocks of class time for PBL.
- **Administrative and instructional leadership** that puts a priority on providing the time and other resources necessary to make PBL happen. These leaders promote main course PBL to

parents, the community, and the students, to be sure everyone is on board with the effort, and help troubleshoot implementation issues when they occur.

Moving to Scale

The model schools and classrooms described above provide proof points for main course Project Based Learning, and the 21st century preparation it provides. The features listed above describe what needs to be done at the school level for consistently implemented, successful PBL. But moving from individual schools to mass implementation of main course Project Based Learning will require vision and leadership at the district, state and eventually, the national level. In West Virginia, we find one example of how this could occur. Governor Joe Manchin and State Superintendent, Dr. Steven L. Paine have created Teach 21, a multi-faceted initiative to better prepare students to meet 21st century educational goals. Teach 21 is a top-to-bottom effort to redesign West Virginia schools for the 21st century. It includes rethinking and revising state standards and assessment, teacher credentialing and professional development. Relying on wikis and other technologies to share information, disseminate approved project designs and support teachers, West Virginia educators and their students are being treated as 21st century learners.

Main course Project Based Learning is an instructional strategy that enables students to learn meaningful content and practice skills needed for 21st century success. If we are serious about reaching 21st century educational goals, main course Project Based Learning must be at the center of 21st century instruction.

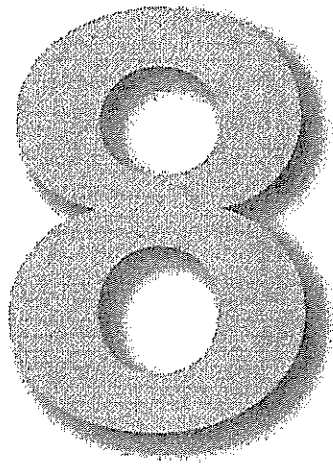
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Toolkit M6.2-A1-3: *8 Essentials for Project-Based Learning*



Essentials for Project-Based Learning

*Some “projects” border on busywork.
Others involve meaningful inquiry that
engages students’ minds.*

John Larmer
John R. Mergendoller, PhD.
Buck Institute for Education

As Mrs. McIntyre walked around the high school science classroom, she plopped a packet of papers on each student’s desk and announced a “project.” Each student would create a poster about a water-borne bacterium that can be harmful to humans, the bacterium’s effects, and disease prevention and treatment. The handouts included an assignment sheet with due dates and grading policy, a rubric, a guide for designing the poster, and a list of websites and books. The teacher would display the best posters.

...



Students at Mare Island Technical Academy in Vallejo present their project work to an audience.

Toolkit M6.2-A1-3:

8 Essentials for Project-Based Learning

Sound familiar? When you were in school, did you make posters, dioramas, and models of buildings or volcanoes? If you are a teacher, have you asked students to research a topic and present information with PowerPoint slides? These are all-too-common examples of the kind of meaning-lite assignments that teachers bill as projects. A classroom filled with student posters may suggest that students have been engaged in meaningful learning. But it is the process of students' learning and the depth of their cognitive engagement – rather than the resulting product – that distinguishes projects from busywork.

What Every Good Project Needs

A project is meaningful if it fulfills two criteria. First, students must perceive it as personally meaningful, as a task that matters and that they want to do well. Second, a meaningful project fulfills an educational purpose. Well-designed and well-implemented Project Based Learning (PBL) is meaningful in both ways.

As educators with the Buck Institute for Education, we provide professional development to help schools set up a sustained program of in-depth Project Based Learning throughout a district, network, or state. In our work with teachers, we have identified eight essential elements of meaningful projects. Let's look at each element by considering what the fictional Mrs. McIntyre could have done to create a meaningful project instead of handing out prepared packets.

1. Significant content

Back when she began planning the project, Ms. McIntyre started with her content standards. She knew the standards about microorganisms and disease were reflected in high number of items on her state's test, and her own judgment told her this was an important topic for young people to understand. She also thought her students would find the topic significant, since bacteria and disease had concrete effects on their lives.

• • •

Project Based Learning is sometimes mistakenly believed, based on old stereotypes, to be an ineffective vehicle for teaching content. But while it is true that a teacher cannot "cover" (which isn't, after all, the same as "teach") as much material in a project as he or she could through lectures, worksheets, and textbooks, students in a well-designed project understand the content more deeply. Teachers should plan a project to focus on important knowledge and concepts derived from standards. The content should also reflect what the teacher thinks is essential to understand about the topic. And students should find the content to be significant in terms of their own lives and interests.

2. A Need to Know

Imagine that on the first day of the infectious disease unit, Ms. McIntyre showed a video depicting scenes of a beautiful beach, which ended with a shot of a sign saying, "Beach Closed: Contaminated Water." Suppose watching this video led to a lively (and sometimes disgusting) discussion in which students shared their experiences with suspicious water quality, discussing times when beaches had been closed and why. The teacher could then introduce the project by telling students that they would be learning more about ocean pollution and taking action to combat it.

• • •

Teachers can powerfully activate students' need to know content by launching a project with an "entry event" that engages student interest and initiates questioning. An entry event can be almost anything: a video, a lively discussion, a guest speaker, a field trip, or a piece of mock correspondence that sets up a scenario. In contrast, announcing a project with a packet of papers is likely to turn students off; it looks like a prelude to busywork.

Many students find school work meaningless because they don't perceive a need to know what they are being taught. They are unmotivated by a

teacher's suggestion that they should learn something because they'll need it later in life, or for the next course, or simply because "it's going to be on the test." With a compelling student project, the reason for learning relevant material becomes clear: I need to know this to meet the challenge I've accepted.

3. A Driving Question

After the discussion about beach pollution, Ms. McIntyre led students in brainstorming possible solutions, such as enacting laws, designing better waste-treatment systems, and raising public awareness about the need to reduce contaminants. Students created a Driving Question to focus their efforts, focusing on a specific, local area: How can we reduce the number of days Foster's beach is closed because of poor water quality?

A good driving question captures the heart of the project in clear, compelling language.

A good Driving Question captures the heart of the project in clear, compelling language, which gives students a sense of purpose and challenge. The Question should be provocative, open-ended, complex, and linked to the core of what you want students to learn. It could be abstract (When is war justified?); concrete (Is our water safe to drink?); or focused on solving a problem (How can we improve this website so that more young people will use it?).

A project without a Driving Question is like an essay without a thesis. Without a thesis statement, a reader might be able to pick out the main point a writer is trying to make; but with a thesis statement, the main point is unmistakable. Without a Driving Question, students may not understand why they are undertaking

Toolkit M6.2-A1-3:

8 Essentials for Project-Based Learning

a project. They know that the series of assigned activities has some connection with a time period, a place, or concept. But if you asked, "What is the point of all these activities?" they might only be able to offer, "Because we're making a poster."

4. Student Voice and Choice

Once her students' interest was piqued by a challenging question, Ms. McIntyre explained the requirements for the "Don't Close the Beach" project, which included an individually written paper, a product of the students' choice created by teams, and an oral presentation of their work accompanied by media technology. Students chose to develop media kits for journalists, video public service announcements, web pages, brochures, and letters to government and industry officials, among other products.

• • •

This element of Project Based Learning is key. In terms of making a project feel meaningful to students, the more voice and choice, the better. However, teachers should design projects with the extent of student choice that fits their own style and students.

On the limited-choice end of the scale, learners can select what topic to study within a general Driving Question or choose how to design, create, and present products. As a middle ground, teachers might provide a limited menu of options for creative products to prevent students from becoming overwhelmed by choices. On the "the more the better" end of the scale, students can decide what product they will create, what resources they will use, and how they will structure their time. Students could even choose a project's topic and Driving Question.

5. 21st Century Competencies

Once Ms. McIntyre's students had decided on actions that would help them respond to the Driving Question, they got to work. Collaboration was central to the project. Students formed teams of three or four and began planning what tasks they would do and how they would work together.

As they worked, each team regularly paused to review how well they were collaborating and communicating, using rubrics the class had developed with the teacher. To boost collaboration skills, Mrs. McIntyre used role-playing and team-building activities. She showed students how to use time and task organizers. They practiced oral presentation skills and learned to produce videos and podcasts.

Students find project work more meaningful if they conduct real inquiry.

In writing journals, students reflected on their thinking and problem-solving processes, which they knew they would need to explain in their oral presentation.

• • •

A project should give students opportunities to build 21st century competencies such as critical thinking, collaboration, communication, and creativity/innovation, which will serve them well in the workplace and life. This exposure to authentic skills meets the second criterion for meaningful work – an important purpose. A teacher in a Project Based Learning environment explicitly teaches and assesses these skills and provides frequent opportunities for students to assess themselves.

6. In-Depth Inquiry

After the discussion about encounters with pollution, in addition to choosing a Driving Question, Ms. McIntyre's students as a whole class generated a list of more detailed questions about diseases, bacteria and their effects, and sources of water contamination. Questions included, What diseases can you get from water? Do you have to drink it to get sick? and Where do bacteria come from? The teams fine-tuned their questions and discussed how to find answers from their teacher, books, articles,

websites, experts, and visits to Foster's Beach.

As these learners found answers, they raised and investigated new questions. Students synthesized the information they gathered and used it both to inform their individually-written papers on the Driving Question and to help create their team's product related to that question.

• • •

Students find project work to be more meaningful if they are asked to conduct real inquiry – which does not mean finding information in books or websites and pasting it onto a poster. In real inquiry, students follow a trail that begins with their own questions, leads to a search for resources and the discovery of answers, and which ultimately leads to generating new questions, testing ideas, and drawing their own conclusions. With real inquiry comes innovation – a new answer to a Driving Question, a new product, a new solution to a problem. The teacher does not ask students to simply reproduce teacher- or textbook-provided information in a pretty format.

To guide students in real inquiry, refer students to the list of questions they generated after the entry event. Coach them to add to this list as they discover new insights. The classroom culture should value questioning, hypothesizing, and openness to new ideas and perspectives.

7. Critique and Revision

As they developed their ideas and products, student teams reviewed and critiqued one another's work, referring to rubrics and exemplars. Ms. McIntyre checked research notes, reviewed rough drafts and plans, and met with teams to monitor their progress.

• • •

Formalizing a process for critique and revision during a project makes learning meaningful because it emphasizes that creating high-quality products and performances is an important purpose of

Toolkit M6.2-A1-3: 8 Essentials for Project-Based Learning

and revision during a project makes learning meaningful because it emphasizes that creating high-quality products and performances is an important purpose of the endeavor. Students need to learn that most people's first attempts don't result in high quality and that revision is a frequent feature of real-world work.

In addition to providing direct feedback, the teacher should coach students in using rubrics or other sets of criteria to critique one another's work. Teachers can arrange for experts or adult mentors to provide feedback, which is especially meaningful to students because of the source.

7. A Publicly Presented Product
In Ms. McIntyre's class, teams presented their analyses of water contamination issues and proposals for addressing the problem at an exhibition night. The invited audience included parents, peers, and representatives of community, business, and government organizations. Students answered questions and reflected on how they completed the project, next steps they might take, and what they gained in terms of knowledge and skills—and pride.

Schoolwork is more meaningful when it's not done only for the teacher or the test. When students present their work to a real audience, they care more about its quality. Once again, it's "the more, the better" when it comes to authenticity. Students might replicate the kinds



Students at Tamaulipas High School in California study U.S. History in a project.

of tasks done by professionals—but even better, they might create real products that people outside school use.

The Rest of the Story

The hypothetical project described here was inspired by a real project, "Media Saves the Beach," carried out by students at High Tech High in San Diego, California. In this real-life project, students worked alongside established local groups to advocate cleaner seashores. Several government agencies eventually came through with funding for water monitoring at local beaches.

In truth, one of the products students created was a poster. What made that poster different from the meaning-lite one Ms. McIntyre assigned? The High Tech High students chose to do their

poster because it was an effective way to communicate their message at Exhibition Night—and the team stood nearby to explain it. To create the poster, students engaged in an extended process of inquiry, critique, and revision. They learned important things in the process. In short, even a poster can be meaning-heavy if it's part of a project embodying the seven essential elements of project-based learning. ■

Authors' note: Individual and some place names in this article are pseudonyms.

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Toolkit M6.2-A2-1: Senarai Semak Standard

Arahan: Catatkan ringkasan rancangan unit PdP berasaskan elemen GRASPS di bawah.

G=Goal	
R=Role	
A=Audience	
S=Situation	
P=Product	
S=Standard	

Menyediakan Tugas PBL Berasaskan G.R.A.S.P.S.

G=Goal	<ul style="list-style-type: none"> ▪ Tugas anda adalah ... ▪ Matlamatnya adalah ... ▪ Cabaran atau masalahnya adalah ... ▪ Halangan yang perlu diatasi adalah ...
R=Role	<ul style="list-style-type: none"> ▪ Anda sebagai ... ▪ Anda dikehendaki ... ▪ Tugas / peranan anda adalah ...
A=Audience	<ul style="list-style-type: none"> ▪ Pelanggan anda adalah ... ▪ Khalayak yang menjadi sasaran anda adalah ... ▪ Anda dikehendaki meyakinkan ...
S=Situation	<ul style="list-style-type: none"> ▪ Kini anda sedang berada di ... ▪ Cabarannya, anda perlu berurusan dengan ...
P=Product	<ul style="list-style-type: none"> ▪ Anda akan menghasilkan ... untuk ... ▪ Anda dikehendaki membangunkan ...
S=Standard	<ul style="list-style-type: none"> ▪ Pencapaian anda perlu ... ▪ Hasil tugas anda akan dinilai berasaskan ... ▪ Produk dihasilkan perlu memenuhi standard berikut ... ▪ Hasil yang cemerlang akan ...

Toolkit M6.2-A3-1: Senarai Semak Standard

Senarai Semak Standard

Mengenal pasti Pengetahuan dan Kemahiran
Senaraikan kata nama, kenyataan kata nama dan kata sifat yang terdapat dalam dokumen standard:

Huraikan dalam perkataan atau beberapa 'bullet', apakah murid perlu TAHU.

Senaraikan kata kerja dan prasa kata kerja yang telah dikenal pasti dalam dokumen standard

Huraikan dalam ayat atau beberapa 'bullet', apa yang dijangkakan murid BOLEH LAKUKAN

Toolkit M6.2-A3-2: Senarai Semak Standard (Kandungan & Pembelajaran)

Templat Standard Kandungan dan Pembelajaran

Pernyataan Standard Kandungan	Indikator/ Eviden	Pernyataan Standard Pembelajaran	Indikator/ Eviden
cth: Dunia Sains dan Teknologi Tahun 3 Murid menerangkan tentang fakta dan konsep sains	Murid menghuraikan fakta dan konsep sains melalui pembentangan di bilik darjah	Murid menggunakan TMK untuk mencari, mengumpul, memproses dan menggunakan maklumat	Murid menggunakan perisian hampan elektronik untuk merekod dan menganalisis data-data ujikaji dan digunakan dapatan bagi menghasilkan laporan ujikaji

Toolkit M6.2-A3-3: Senarai Semak Standard (Eviden & Aktiviti)

Templat Eviden dan Aktiviti

KmR: Toolkit Modul 6.2

Eviden	Aktiviti
Murid menghuraikan fakta dan konsep sains melalui pembentangan di bilik darjah	Menyediakan laporan ujikaji

Toolkit M6.2-A3-4: Konsep Rubrik

Apakah dia Rubrik?

Rubrik bermaksud "a guide listing specific criteria for grading or scoring academic papers, projects, or tests." (Sebagai senarai panduan terhadap kriteria yang khusus untuk menentukan gred atau skor sesuatu penulisan akademik, projek atau ujian). Rubrik terdiri daripada satu set kriteria yang koheren untuk menentukan tahap kualiti pencapaian hasil tugas murid berasaskan huraian kriteria tersebut. Justeru perlu diberikan penegasan bahawa rubrik hendaklah terdiri daripada dua aspek iaitu satu kriteria yang koheren dan huraian terhadap tahap pencapaian setiap kriteria tersebut).

Keistimewaan Rubrik adalah sifatnya yang deskriptif dan tidak penilaian semata-mata. Penggunaan rubrik untuk pentaksiran berasaskan prinsip operasi melalui pemadanan antara pencapaian dan huraian kriteria. Ini bermakna, kekuatan atau kelemahan rubrik bergantung kepada ketepatan pemilihan kriteria dan kualiti huraian pencapaian setiap kriteria tersebut.

Apakah peranan rubrik?

Seperti instrumen pentaksiran yang lain, rubrik sesuai digunakan untuk tujuan tertentu. Sebagai contoh, rubrik boleh digunakan semasa melakukan pemerhatian terhadap proses dan produk yang dihasilkan oleh murid melaksanakan sesuatu tugas. Berikut disenarai contoh jenis pencapaian yang boleh diukur menggunakan rubrik:

Jenis Pencapaian	Contoh
Proses: <ul style="list-style-type: none"> ■ Kemahiran fizikal ■ Penggunaan alat ■ Komunikasi lisan ■ Amalan kerja 	<ul style="list-style-type: none"> ■ Bermain alat muzik ■ Memasang komputer ■ Menyediakan slaid untuk mikroskop ■ Menyampaikan ucapan di bilik darjah ■ Berkerjasama dan berkolaboratif
Produk: <ul style="list-style-type: none"> ■ Membina model ■ Penulisan ilmiah, laporan ■ Lain hasil kerja akademik 	<ul style="list-style-type: none"> ■ Rak buku ■ Lukisan ■ Laporan makmal ■ Model fungsi paru-paru ■ Peta konsep / minda

Toolkit M6.2: Senarai Semak Pengurusan Projek

Adakah projek anda mempunyai ciri-ciri berikut:	Ya	Tidak	?
MEMBERI FOKUS TERHADAP KANDUNGAN PENTING DAN ISU AUTENTIK <ul style="list-style-type: none"> ▪ Murid mempelajari kandungan pelajaran yang penting dan berhadapan dengan isu dan masalah dalam kehidupan sebenar 			
MENGURUS AKTIVITI BERKAITAN DENGAN CABARAN YANG DICETUSKAN OLEH SOALAN PENCETUS IDEA (SPI) <ul style="list-style-type: none"> ▪ Murid memberi fokus terhadap persoalan dan cabaran yang mencetuskan hasil tugas yang bermakna 			
MENCETUSKAN KEPERLUAN DAN KEMAHUAN UNTUK TAHU DAN MELAKSANA <ul style="list-style-type: none"> ▪ Murid dilibatkan ke dalam projek melalui satu program yang menarik perhatian dan minat mereka untuk memulakan proses inkuiri 			
MURID TERLIBAT SECARA AKTIF DALAM PROSES INKUIRI <ul style="list-style-type: none"> ▪ Murid berfikir secara mendalam dan menjana soalan-soalan lanjutan untuk memperoleh jawapan dan jalan penyelesaian 			
KEPERLUAN MELAKSANAKAN INOVASI <ul style="list-style-type: none"> ▪ Murid menjana jawapan baharu dan menghasil produk yang unik untuk menjawab cabaran yang dicetuskan oleh SPI 			
MEMBINA KOMPETENSI PEMBELAJARAN BERMAKNA 6C <ul style="list-style-type: none"> ▪ Murid membina kompetensi kewarganegaraan, sahsiah, pemikiran kreatif dan kritis, kemahiran komunikasi & berkolaborasi semasa melaksanakan projek 			
MENGALAKKAN MURID MEMBUAT PILIHAN DAN MEMBERI CADANGAN <ul style="list-style-type: none"> ▪ Murid melalui bimbingan guru diberi peluang dan ruang untuk membuat pilihan dan mengemukakan cadangan yang mempengaruhi pelaksanaan projek 			
MENGABUNGKAN MAKLUM BALAS DAN MEMBUAT SEMAKAN <ul style="list-style-type: none"> ▪ Murid menggunakan maklum balas untuk menambah baik tugas dan menghasilkan produk berkualiti tinggi 			

Toolkit M6.2: Senarai Semak Pengurusan Projek

<p>DISEMPURNAKAN DENGAN PERSEMBAHAN AWAM</p> <ul style="list-style-type: none"> ▪ Murid mempamerkan produk atau mempersembahkan cadangan penyelesaian dan menerangkan hasil tugas. Mereka menjawab soalan-soalan yang dikemukakan oleh penonton. 			
--	--	--	--

Toolkit M6.2-A4-1: Peranan Rubrik dalam PBL

Peranan Rubrik dalam PBL

Mengapakah rubrik penting?

Rubrik memberi pencerahan kepada murid terhadap kualiti kerja yang dikehendaki. Murid perlu memahami sasaran pembelajaran yang ingin dicapai dan kriteria pencapaian atau kejayaan. Dalam hal ini rubrik membantu guru mengajar, menyelaras pengajaran dan pentaksiran serta membantu murid belajar.

Rubrik membantu pengajaran guru

Semasa menyediakan rubrik guru perlu memberi fokus terhadap kriteria pembelajaran yang akan dinilai. Ini membantu guru memberi tumpuan terhadap apa yang murid perlu kuasai. Rubrik melakukan pencerahan terhadap kedua-dua kandungan dan hasil. Rubrik yang baik boleh mengelakkan guru daripada kekeliruan semasa menentukan tugas pembelajaran dengan meletakkan keutamaan kepada kriteria.

Rubrik membantu penyelarasan pengajaran dan pentaksiran

Rubrik direkabentuk untuk kegunaan berulang kali terhadap beberapa tugas. Murid didedahkan dengan rubrik pada awal pengajaran atau pelaksanaan tugas. Murid boleh menggunakan rubrik sebagai panduan untuk meningkatkan kualiti pencapaian melalui maklum balas yang diterima dan semakan semula secara berterusan.

Rubrik membantu murid

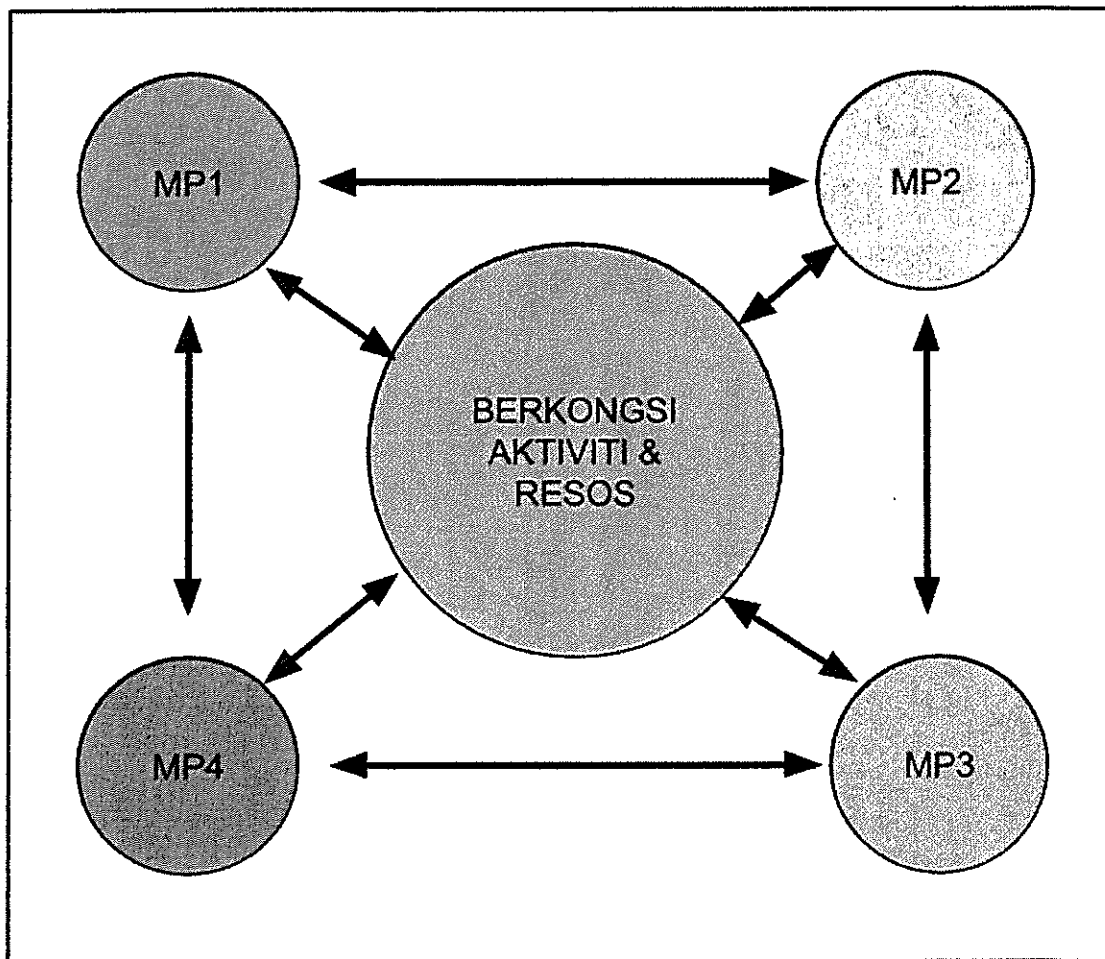
Kriteria dan huraian pencapaian yang disediakan dengan teliti semasa penyediaan rubrik boleh membantu murid memahami pencapaian yang hasratkan. Sekiranya tugas dilaksanakan secara berperingkat, murid boleh mengambil tindakan yang sesuai untuk langkah seterusnya. Kajian menunjukkan peranan rubrik boleh meningkatkan kualiti dan pencapaian projek (Higgins, Harris, & Kuehn, 1994); (Andrade, Du, and Wang, 2008) dan (Ross, Hoagaboam-Gray, and Rolheiser, 2002)

**Sejauh mana persamaan rubrik dalam PBL dengan 'descriptors' dalam PBS?
 Lakukan banding-beza. (Mapping PBL ↔ PBS)**

Bil.	Rubrik PBL (Kriteria dan Huraian Pencapaian)	PBS (Evidens dan Descriptor)
1.		
2.		
3.		

Toolkit M6.2-A4-3: Konsep Integrasi Dalam PBL

Konsep Integrasi Dalam PBL



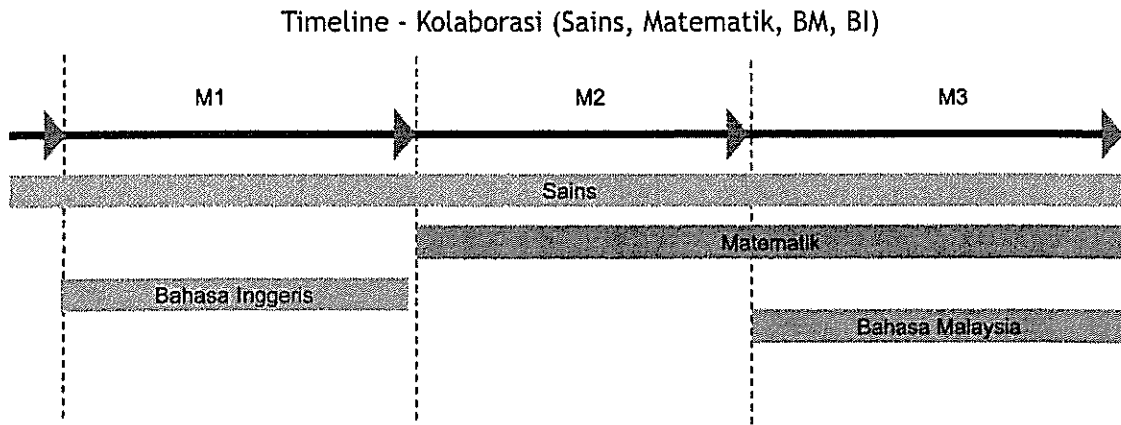
CONTOH:

- MP1 : Sains
- MP2 : Matematik
- MP3 : Bahasa Malaysia
- MP4 : Bahasa Inggeris

RESOS :

- Bahan taklimat
- Makmal Komputer
- Dan lain-lain

Toolkit M6.2-A5-1: Timeline - Kolaborasi

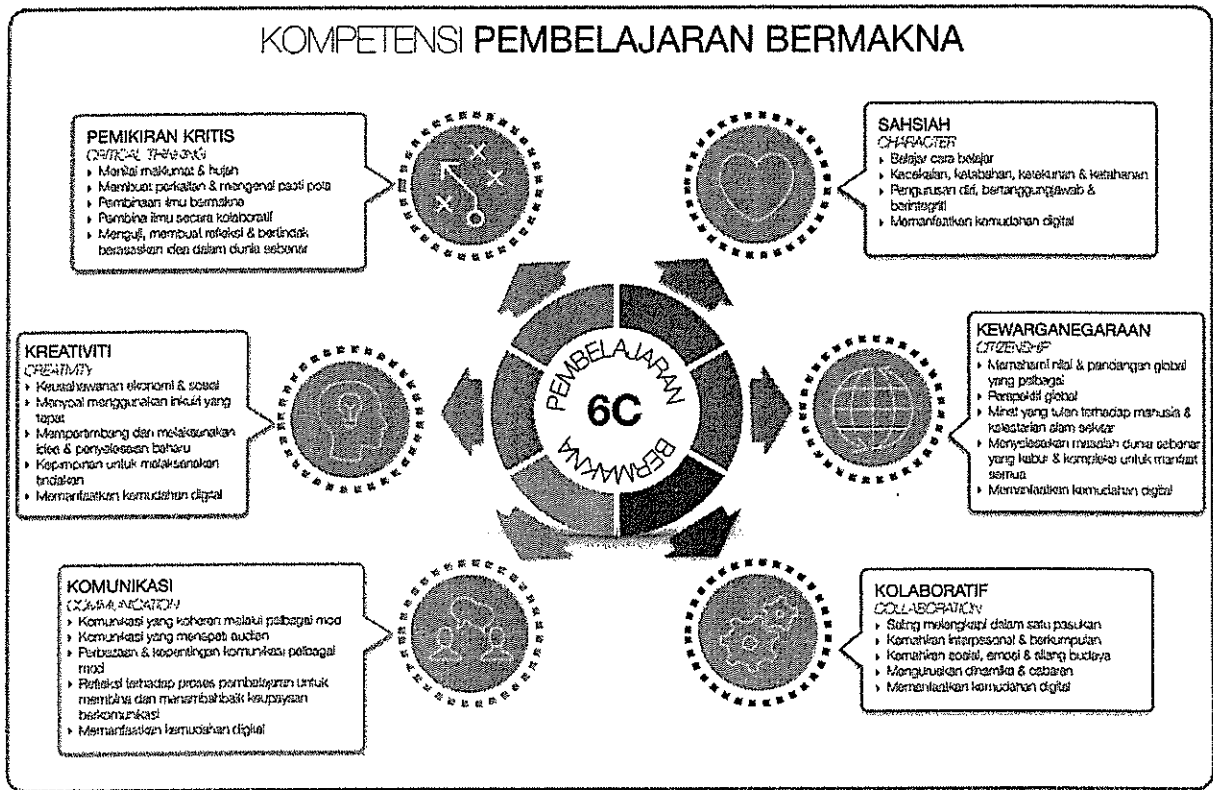


Tuan Rumah : Sains

Tetamu: Matematik, BM dan BI

Minggu 1	Minggu 2	Minggu 3
Sains: Pertumbuhan: Ujikaji Merendam biji kacang hijau	Sains: Pemerhatian - tumbesaran pokok dan catatan keperluan /penjagaan /air/ cahaya	Sains: Membuat Laporan Makmal bertulis, menyediakan persembahan dan analisis data ujikaji
	Matematik: Murid mengukur dan merekod ketinggian dan berat pokok (sebagai indikator tumbesaran)	Matematik: Pelajaran menganalisis data yang diperolehi untuk melihat kadar pertumbuhan dalam tempoh 2 minggu
BI: Murid membuat rujukan bahan-bahan di Internet (mengumpul, menganalisis dan mengguna maklumat) - dokumen dalam BI		
		BM: Murid menyediakan laporan bertulis akhir projek

Toolkit M6.2: 6C (Kompetensi Pembelajaran Bermakna)



PENGHARGAAN

PENAUNG

YBhg. Datuk Dr. Amin bin Senin
Ketua Pengarah Pelajaran Malaysia
Kementerian Pendidikan Malaysia

PENASIHAT

YBhg. Dato' Sulaiman bin Wak
Timbalan Ketua Pengarah Pelajaran Malaysia
Pembangunan Profesionalisme Keguruan
Kementerian Pendidikan Malaysia

YBhg. Datuk Hajah Maimunah binti Haji Suhaibul
Pengarah
Bahagian Pendidikan Guru
Kementerian Pendidikan Malaysia

PENGURUS PROJEK

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Pembangunan Profesionalisme Keguruan
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Norliza binti Mat Kasa
Norma binti Sulaiman
Kamarulzaman bin Anuar
Bahagian Pendidikan Guru
Kementerian Pendidikan Malaysia

BAHAGIAN DAN JABATAN

Institut Aminuddin Baki
Institut Pendidikan Guru Malaysia
Bahagian Pengurusan Sekolah Harian
Jabatan Pendidikan Negeri