



**Enhancing Teaching Language Skills and Designing Instructional
Materials to Improve Literacy and Numeracy Skills Program**

For Indonesian Secondary School Staff

**Supporting struggling learners and
differentiating instruction**

These slides are available at
[https://melteducation.wordpress
.com/](https://melteducation.wordpress.com/)

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Thursday & Friday Mornings Learning Intention

- Plan several strategies that support struggling learners by differentiating instruction (to be used on your return to Indonesia)

Thursday: Reading and Writing

Friday: Speaking and Listening

- Consider emailing me and tell me what happens!



Differentiation Example 1: Allowing students to develop skills at their own pace

1. Line up in order of the number of years you have been employed in schools...



Observation



Your NameDate.....

Have you heard the expression 'I couldn't believe my eyes'? Many explorers roaming across the deserts of Australia saw water in the distance. But when they rushed up to have a drink, they swallowed a mouthful of sand. It was not water they saw, but a mirage.

5 30

These explorers soon learned not to trust their sense of sight only - they realized they needed to use other **senses** too. Our senses are sight, hearing, touch, taste and smell, and these are our main ways of finding out about the world. We should use as many senses as possible in science. In this way we may not be so easily tricked by mirages.

10 35

In science, as you explore amazing things in this world, you need to make accurate **observations**. Observations are what we can say about things we see, hear, smell, taste and touch. We can also use measuring equipment to help us with observations. In the experiment today, you will need to use four of these five senses to make some accurate observations. Your group should aim to make the best set of observations in the following experiment.

15

20

25

Experiment : Pop the corn

Equipment: Small tin can, with 20 kernels of corn

Bunsen Bumer matches

Tripod bench protector

Gauze mat safety glasses

Method: The method tells you the steps to follow.

1. Make as many observations about the unpopped corn as possible. Record these.

2. Place the tin can with the corn kernels on the gauze mat. Light the Bunsen burner, and begin heating on a blue flame.

3. Use every sense, except taste, to make observations from the time you start to heat.

4. Clean up thoroughly.



Resources at:

<https://www.adelaide.edu.au/melt/k-12-education#secondary>



10

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Graphic Organiser

Structured Overview

Part 1. Purpose of the text

Find the key ideas from the text, and their meaning in the context of the experiment. Organise below.

a. Title (purpose)

Key
word(s)

Line no.s

Meaning in
context

•

•

•



Some students demonstrate capacity to identify key ideas with a few repeat examples...

.... some students require many experiences over an extended time



Part 2. Infer



Analyse the text again, then answer these questions by **synthesising** some new ideas:

a. Why can't you use your sense of taste in this experiment?

b. Why must you use a blue flame to heat the tin can?



a. **Generate** observation data before popping the corn, during, and then after, and **organise** into this table:

Observations	Before popping	During popping	After popping
Sight			
Hearing			
Smell			
Touch			

b. **Evaluate** your observations by saying how accurate and trustworthy they are.

c. **Analyse** the data you've gathered to explain any patterns (common things happening every



Part 4. Create



a. **Synthesise** two questions you have after doing this writE science sheet:

b. **Communicate** in writing about a time when you made an incorrect observation, and something funny or bad happened as a result.



Time constraint... e.g.

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Part A: Identifying Key Ideas

- All about the purpose of text
- Some students require week-after-week mastery. They start each week with part A
- Some students quickly demonstrate proficiency at identifying key ideas. They are allowed to start at Part B.



Activity 1: facilitating student development of a skill set at their own pace (continued)

- In your group, use your white board area to brainstorm ideas about how to allow students to develop a skill set at their own pace.
- Use subject-specific example(s)
- May use technology or no technology
- Doesn't need to be complete
- Be ready to share with others
- Take a photo



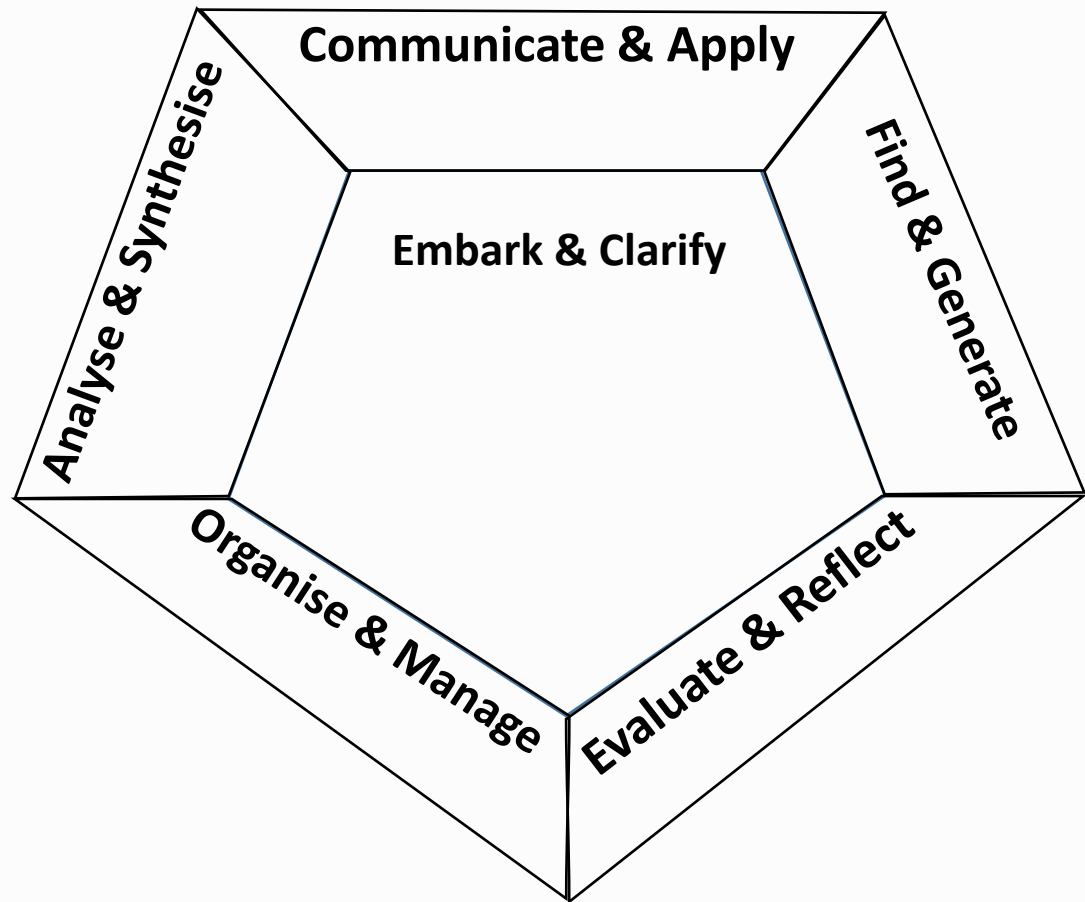
Which skills for differentiation?

- On Monday, you discussed Bloom's Verbs
- The model I am going to show you **fuses** Bloom's Verbs and Information Literacy Standards



Models of Engaged Learning & Teaching: The MELT Pentagon

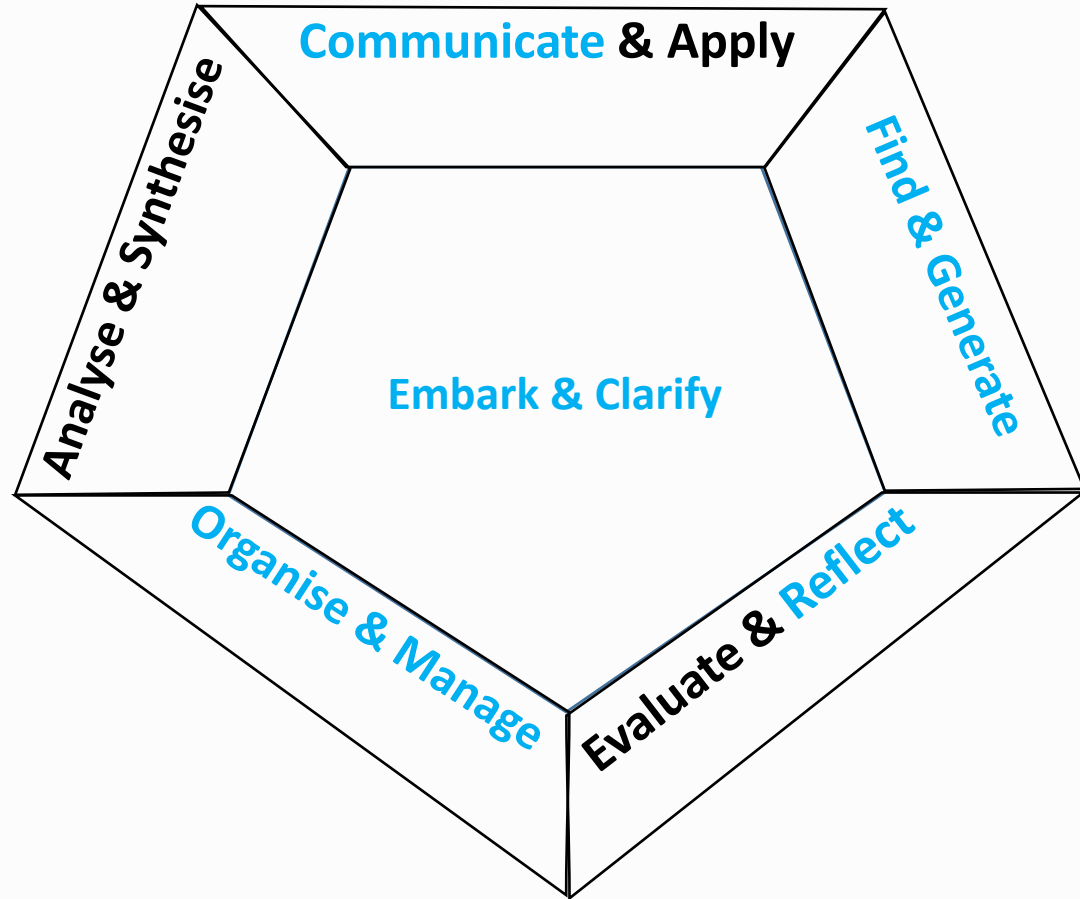
How many of these 12 verbs
are not part of Blooms
taxonomy?
1 minute for your group to
count and then declare.





Models of Engaged Learning & Teaching Facet in Pentagon form

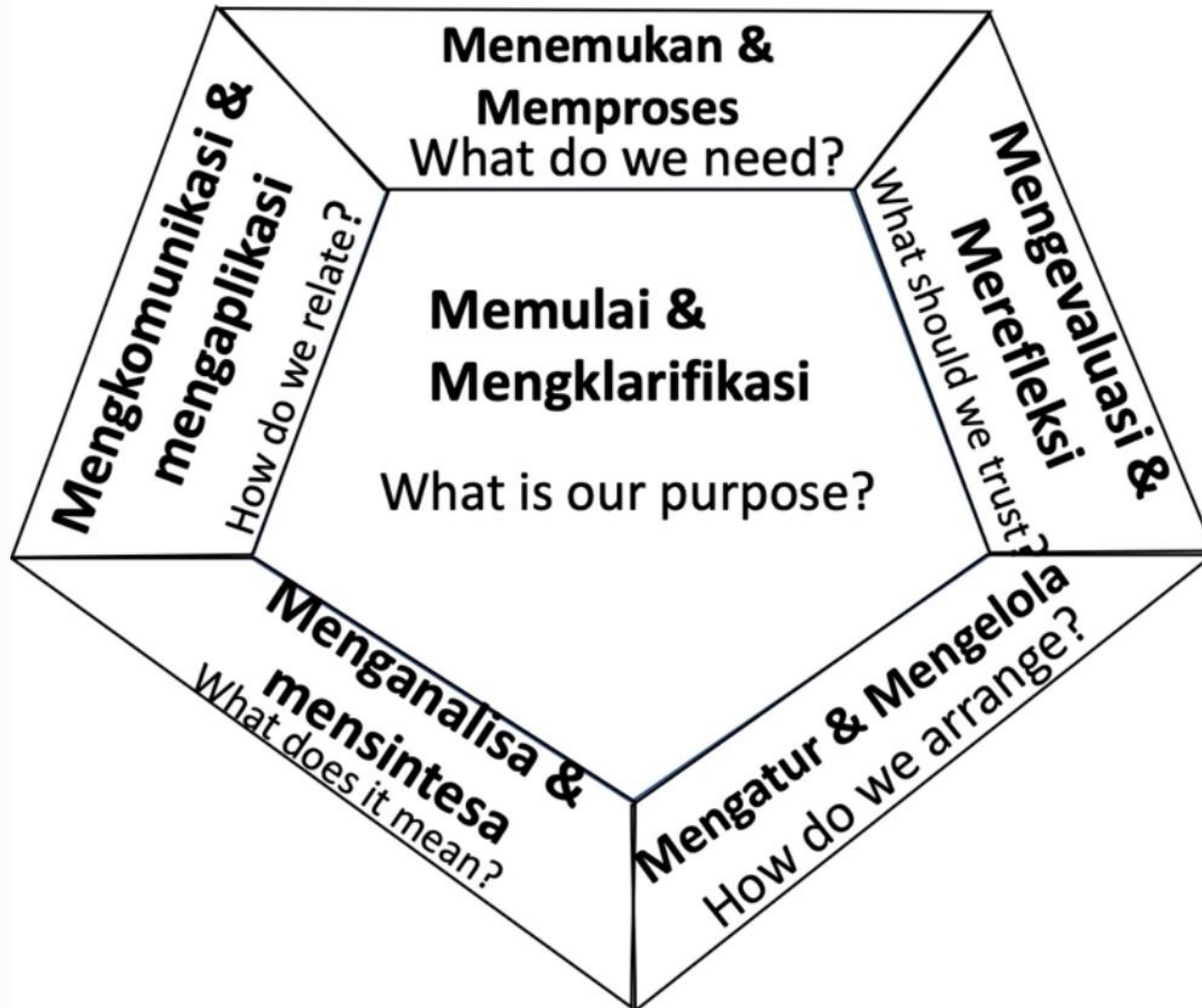
What verbs are used instead
of Knowledge?





Models of Engaged Learning & Teaching Facet in Pentagon form

When in doubt, go to the centre...





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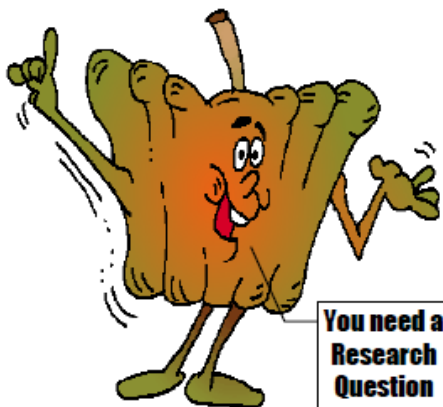
b. **Communicate** in writing about a time when you made an incorrect observation, and something funny or bad happened as a result.



Copper Sulfate Experiment



Your Name Date.....



**You need a
Research
Question**

Today you need to think of an interesting research question about copper sulfate. This type of question makes it very clear what you want to research. To come up with a good research question, begin by brainstorming about observations on CuSO_4 that have interested you. A good research question is interesting, specific, and helps you decide how to design your experiment. For example, you may think:

'Copper sulfate would probable react strongly with some acids and not other.'

You should write this as a question:

'How strongly does copper sulfate react strongly with different acids?'

Next you must decide which is the one manipulated variable. This is the variable you decide to change and is related to your research question. In the earlier example, you would manipulate the type of acid used.

Then you must identify all the controlled variables. Remember, these could vary, but you must control them so they don't.

Controlled variables would include things like:

- amount of copper sulfate
- temperature
- amount of each acid
- amount of stirring.

If these vary from trial to trial, it will not be a fair test.

You must also state your dependent variable.

This is the thing that happens in response to your experiment. For example, it could be the speed of a chemical reaction. Importantly, you must design your experiment so you can measure the dependent variable and so be able to answer your research question This is very important as it determines whether you conduct a fair test. So, what would you like to research?

Other writE have similar structure, but demand increase in student choice



Design your own seed experiment



Your NameDate.....

What are they waiting for? You planted those pea seeds a month ago and they still haven't come up. Sure, the pack said 'sow in spring' and you planted them in July, but so what? They had lots and lots and lots of rain, so it couldn't be anything to do with water, could it? Now, the soil was kind of sandy, but the grass grows fine on that, it seems, so that shouldn't affect anything.

Your saucepan is ready to cook fresh, green, delicious home-grown peas, but the peas haven't even shown a little leaf. Maybe it's time to investigate what things affect seeds sprouting. Otherwise, you may never get those home-grown peas you want.

You need to think about a **hypothesis**, which will give you a direction to research. A hypothesis is a 'mini theory'. To come up with one, ask yourselves 'what things might cause seeds to sprout?' Your hypothesis will be about the effect of one of these things. It is a good hypothesis if it helps you decide how to design your experiment. For example, your hypothesis might be:

'The longer the seeds have been in the packet, the longer they take to sprout.'

You could even write it as a question

'Does the time seeds have been in the packet affect how quickly they sprout?'

Next you must decide the one manipulated variable. This is the variable you decide to change. This is related to your hypothesis. In the example above, you would manipulate the amount of time seeds have been in the packet, by using packets with different use-by dates.

Then you must identify all the **controlled variables**. Remember, these could vary, but you must control them so they don't. Controlled variables would include things like:

- amount of water
- temperature
- soil type
- light conditions
- humidity
- seed type
- amount of air available

If they vary, it will not be a fair test.

You must also state your **dependent variable**. This is the thing you are going to measure. For example, is it the number of seeds that sprout, or the average height the seeds grow to in a certain time, or something else?

Importantly, you must show the design of the experiment, including the equipment you need. You must design your experiment to find evidence to confirm or deny your hypothesis. This is a very important step as it determines whether you conduct a fair test. Therefore you will find out if you might be able to grow peas after all.

This write demands the same skills, but many student choices



Observation



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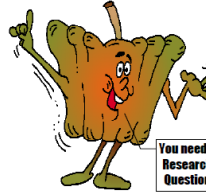


- 5
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- 15
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Students emulate

Students Improvise

Students Initiate

← Less student autonomy

More student autonomy →

← More teacher guidance

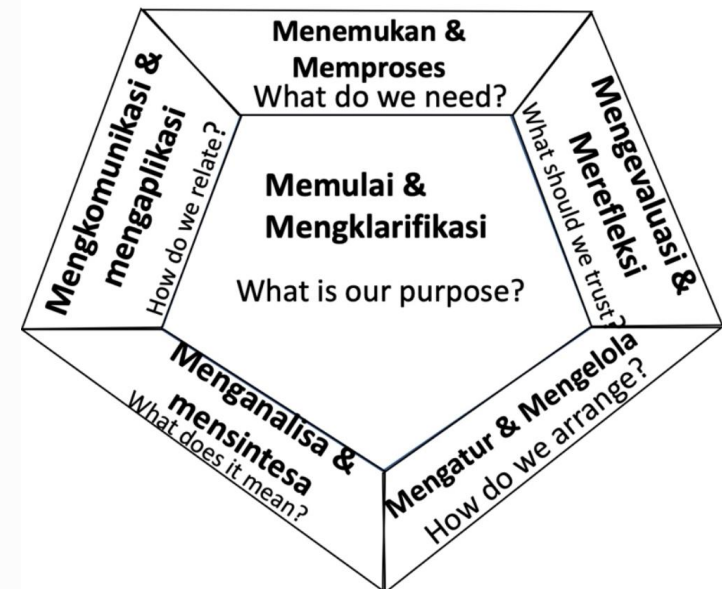
Less teacher guidance →

Scaffolding



Activity 2: Ponderosity

- To 'ponder' is to think deeply
- To walk 'ponderously' is to walk slowly
- Consider one of the six MELT verb-pairs
- “What is a sequence of activities that can scaffold the development of these skills at students own pace?”
- Be specific
- One slow lap around the block
- Be ready to report back





Report Back

- What did you discuss? Tell us:
 - The skills you focussed on
 - Your ideas for developing these skills at students own pace
 - (Share screen?)



Differentiation Strategies today?

- Reflect: What were some aspects of today's lesson that provided differentiation?
- What was the activity that you preferred? Why?
- Whiteboard these ideas in your team



Terima kasih!

Questions?

- These slides are available at <https://melleducation.wordpress.com/>
- Tomorrow: A focus on listening and speaking