

DUAL LANGUAGE PROGRAMME (DLP) 2.0 FOR MATHEMATICS

TRAINER MODULE



2021



MINISTRY OF EDUCATION
INSTITUTE OF TEACHER EDUCATION MALAYSIA

DUAL LANGUAGE PROGRAMME (DLP) 2.0 FOR MATHEMATICS Trainer Module

Training Development Centre,
Institute of Teacher Education Malaysia,
Ministry of Education Malaysia

Dual Language Programme (DLP) Mathematics v2.0

MATHEMATICS MODULE v2.0
Training Development Centre,
Institute of Teacher Education Malaysia,
Ministry of Education Malaysia

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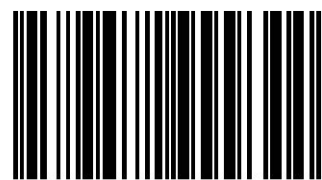
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**DUAL LANGUAGE PROGRAMME (DLP) FOR MATHEMATICS
INSTITUT PENDIDIKAN GURU MALAYSIA,
KEMENTERIAN PENDIDIKAN MALAYSIA**

ADVISOR AND COORDINATOR

1. Advisor
Dr. Yazid bin Abdul Manap
Pusat Pembangunan Latihan
Institut Pendidikan Guru Malaysia, Kementerian Pendidikan Malaysia
2. Coordinator
Puan Maiza Binti Musa
Pusat Pembangunan Latihan
Institut Pendidikan Guru Malaysia, Kementerian Pendidikan Malaysia

**PANEL OF WRITERS FOR DUAL LANGUAGE PROGRAMME
(DLP): MATHEMATICS TEACHER MODULE 2.0 @ 2020**

1. Puan Yeoh Chew Lan
Institut Pendidikan Guru Kampus Temenggong Ibrahim
2. Puan Tolhah Binti Abdullah
Institut Pendidikan Guru Kampus Temenggong Ibrahim
3. Dr. Jacinta Johnny
Institut Pendidikan Guru Kampus Temenggong Ibrahim
4. Dr. Yeo Lian Ming
Institut Pendidikan Guru Kampus Temenggong Ibrahim
5. Dr. Ng Pei Fern
Institut Pendidikan Guru Kampus Temenggong Ibrahim
6. Puan Shufianah Puteri Binti Yusof
Institut Pendidikan Guru Kampus Temenggong Ibrahim

COURSE OUTLINE

This course is relevant to teachers teaching mathematics in the English language. There are eight slots that involve face-to-face sessions, hands-on activities, minds-on activities, group discussions, online tasks and presentations for the course participants (CPs).

OBJECTIVES

The Dual Language Programme (DLP) 2.0 for Mathematics Teachers Module @2020 has two main objectives:

- i. to design real-life learning activities related to mathematics using English as the instructional language.
- ii. to conduct learning activities using digital learning resources, effective questions and constructive feedback in the English language.

SLOT 1

This slot exposes CPs to mathematics content and learning standards in DSKP and helps CPs to relate the learning areas in mathematics to real-life scenarios. CPs are required to create problem solving questions in the English language.

SLOT 2

This slot exposes CPs to existing digital learning resources (Khan Academy, PBS Learning Media and GeoGebra) that would support mathematical conceptual understanding. CPs are required to integrate the digital learning resources in Google Classroom.

SLOT 3 & 4

These slots expose CPs to effective questioning techniques and constructive feedback. CPs are required to pose effective questions and constructive feedback to promote mathematical thinking and justify solutions using mathematical language in English.

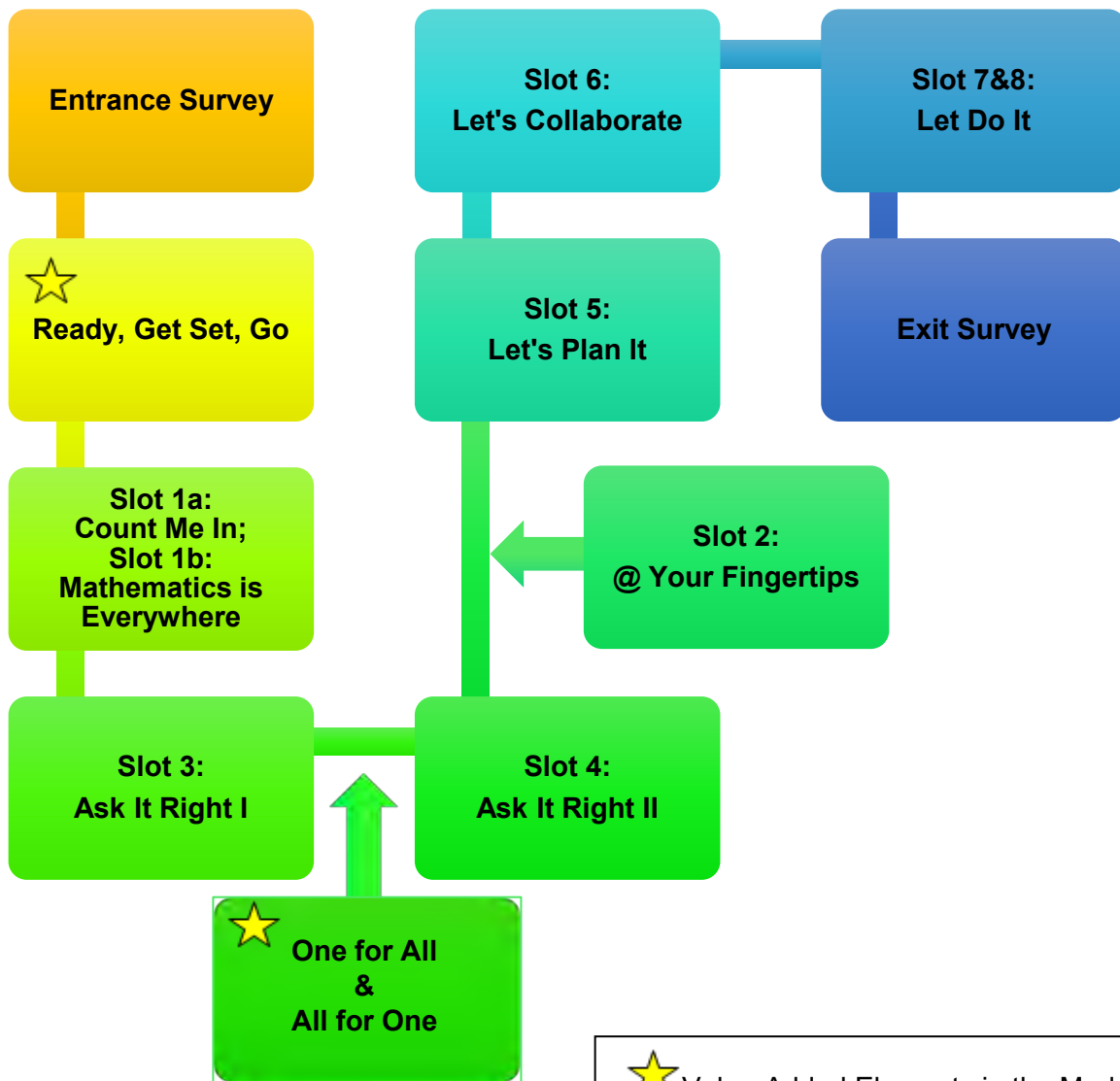
SLOT 5 & 6

These slots require CPs to design real-life problems related to mathematics and plan the learning activities using English as the instructional language. CPs are required to employ digital learning resources, design effective questions and constructive feedback in the plan.

SLOT 7 & 8

These slots require CPs to simulate the learning activities in groups. CPs are required to give feedback and peer review on the simulation.

COURSE FLOW CHART



★ Value-Added Elements in the Module
“Digital Integration and PLC Networking”

CONTENT

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SLOT 1a

COUNT ME IN

| Title | Count Me In |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Synopsis | This slot requires course participants (CPs) to introduce themselves using mathematics. |
| Learning Outcomes | At the end of this session CPs would be able to: <ol style="list-style-type: none">1. introduce themselves creatively using mathematics.2. get to know other CPs in the learning community. |
| Duration | 30 minutes |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks and group discussions. |

SLOT 1a

TITLE : COUNT ME IN








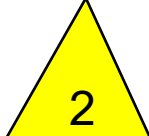



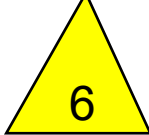








| DURATION | CONTENT | ACTIVITY | RESOURCES |
|------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30 minutes | <p>Getting into groups using shapes.</p> <p>Using Google Slides for self-introduction.</p> <p>Google Slides “Count Me In”.</p> | <ol style="list-style-type: none"> CPs are given a piece of laminated shape each during the registration. <p><i>Note: The total number of shapes must be the same as the total number of participants. Refer to the guidelines for preparation of “Count Me In” activity (Resource 1A-1).</i></p> <ol style="list-style-type: none"> CPs are required to find their group members by describing their respective shapes without talking. CPs with similar shapes will sit together in their respective groups. CPs are required to introduce themselves using mathematics creatively. <p><i>Note: CPs need to include information about DLP level taught in schools. (lower primary, upper primary, lower secondary, or upper secondary).</i></p> <ol style="list-style-type: none"> CPs may use text, image, audio, video or chart for this task. Each CP is to fill up one slide in the “Count Me In” Google Slides according to the piece of shape he/she gets. <p><i>Note: The total number of slides must be the same as the total number of participants.</i></p> | <p><u>Resource 1A-1:</u> Guidelines for Preparation of “Count Me In” activity</p> <p><u>Resource 1A-2:</u> Guidelines for Preparation of “Count Me In” Google Slides.</p> <p><u>Resource 1A-3:</u> “Count Me In” Google Slides Template with Master Slide</p> |










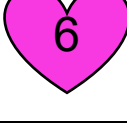
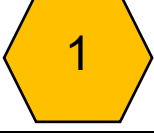
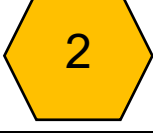




| | | | |
|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | <p><i>Refer to the Guidelines for “Count Me In” Google Slides creation (Resource 1A-2).</i></p> <p>7. CPs are advised to be prudent and follow the guidelines (<i>Resource 1A-2</i>) in filling up the Google Slides (<i>Resource 1A-3</i>).</p> | |
|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|



Resource 1A-1

Guidelines for Preparation of “Count Me In” Activity

| | | | |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|  | Number and Operations (Whole Numbers and Basic Operations) |  | Number and Operations (Whole Numbers and Basic Operations) |
|  | Number and Operations (Whole Numbers and Basic Operations) |  | Number and Operations (Whole Numbers and Basic Operations) |
|  | Number and Operations (Whole Numbers and Basic Operations) |  | Number and Operations (Whole Numbers and Basic Operations) |
|  | Number and Operations (Fractions, Decimals and Percentage) |  | Number and Operations (Fractions, Decimals and Percentage) |
|  | Number and Operations (Fractions, Decimals and Percentage) |  | Number and Operations (Fractions, Decimals and Percentage) |
|  | Number and Operations (Fractions, Decimals and Percentage) |  | Number and Operations (Fractions, Decimals and Percentage) |
|  | Measurement & Geometry (Measurement) |  | Measurement & Geometry (Measurement) |
|  | Measurement & Geometry (Measurement) |  | Measurement & Geometry (Measurement) |
|  | Measurement & Geometry (Measurement) |  | Measurement & Geometry (Measurement) |
|  | Measurement & Geometry (Space) |  | Measurement & Geometry (Space) |

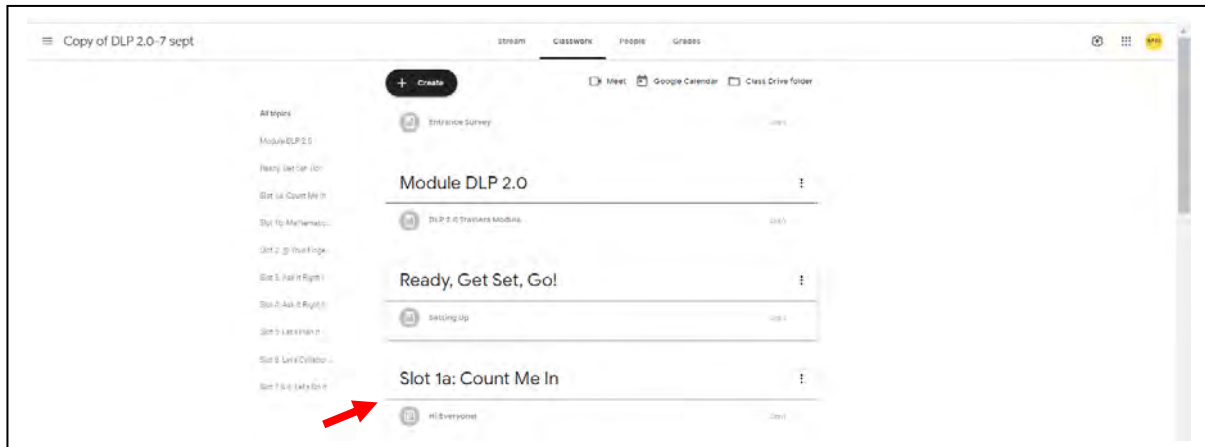
| | | | |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
|  | Measurement & Geometry (Space) |  | Measurement & Geometry (Space) |
|  | Measurement & Geometry (Space) |  | Measurement & Geometry (Space) |
|  | Relationship & Algebra (Coordinate, Ratio & Proportion) |  | Relationship & Algebra (Coordinate, Ratio & Proportion) |
|  | Relationship & Algebra (Coordinate, Ratio & Proportion) |  | Relationship & Algebra (Coordinate, Ratio & Proportion) |
|  | Relationship & Algebra (Coordinate, Ratio & Proportion) |  | Relationship & Algebra (Coordinate, Ratio & Proportion) |
|  | Statistics and Probability (Data Handling and Likelihood) |  | Statistics and Probability (Data Handling and Likelihood) |
|  | Statistics and Probability (Data Handling and Likelihood) |  | Statistics and Probability (Data Handling and Likelihood) |
|  | Statistics and Probability (Data Handling and Likelihood) |  | Statistics and Probability (Data Handling and Likelihood) |



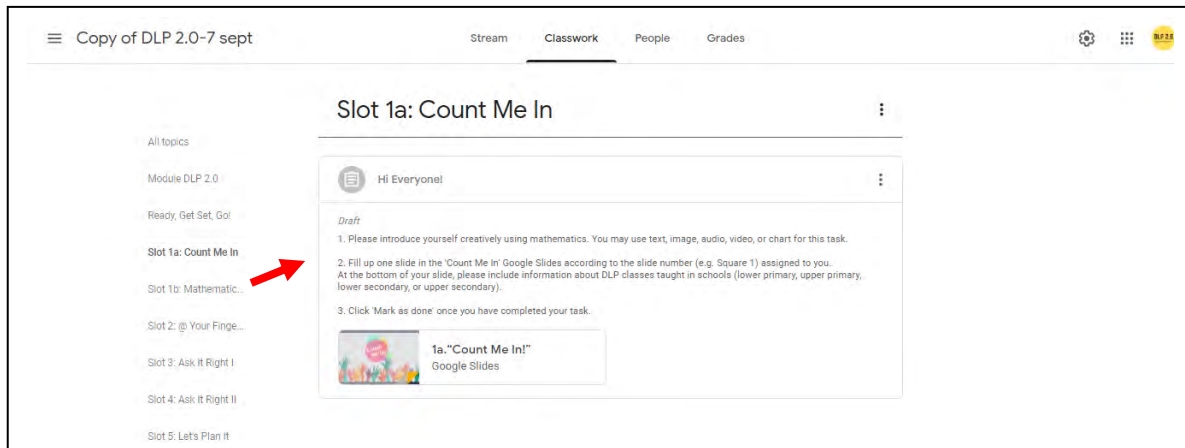
Resource 1A-2

Guidelines for Preparation of “Count Me In” Google Slide

1. Go to Slot 1a “Count Me In” in Google Classroom DLP2.0.



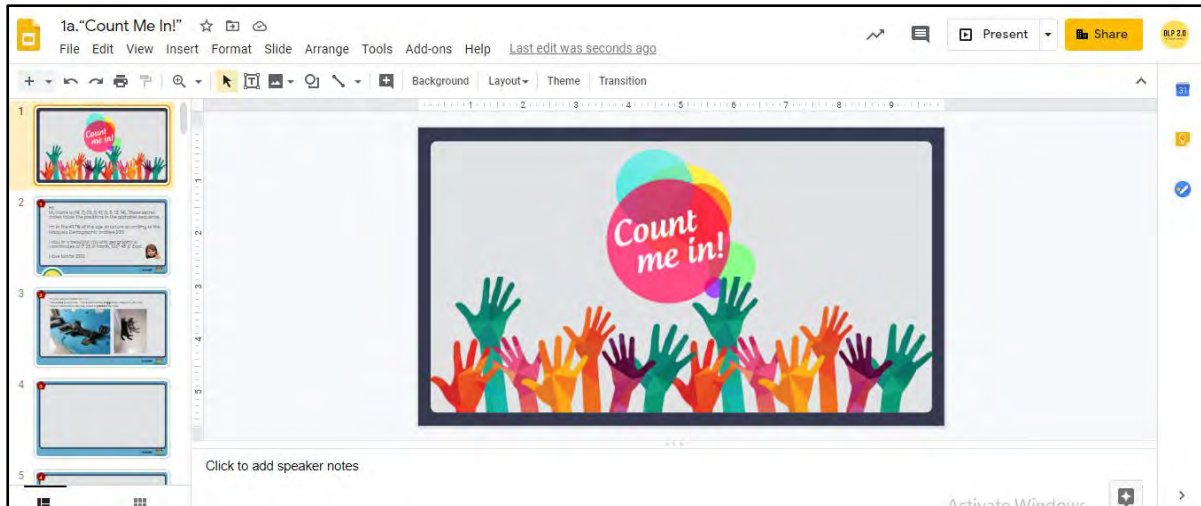
2. Modify and adjust the number of Google Slides in accordance with the number of participants in the DLP2.0 course.





Resource 1A-3

“Count Me In” Google Slides (Master SlideTemplate)



SLOT 1b

MATHEMATICS IS EVERYWHERE – MAKING MATHEMATICS LEARNING RELEVANT

| | |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title | Mathematics is Everywhere! |
| Synopsis | This slot exposes CPs to mathematics content and learning standards in DSKP for all learning areas; namely 'Numbers and Operations', 'Measurement and Geometry', 'Relationship and Algebra' and 'Statistics and Probability'. CPs relate the application of mathematics knowledge and skills in the learning areas to real world. |
| Learning Outcomes | At the end of this session participants would be able to: <ol style="list-style-type: none"> 1. relate the learning areas in <i>DSKP Matematik</i> to real-life scenarios. 2. give authentic examples of how mathematics knowledge and skills are needed in real life. 3. formulate problem solving questions in English based on the examples given. |
| Duration | 1 hour 30 minutes |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks and group discussions. |

SLOT 1b

TITLE : MATHEMATICS IS EVERYWHERE – MAKING MATHEMATICS LEARNING RELEVANT

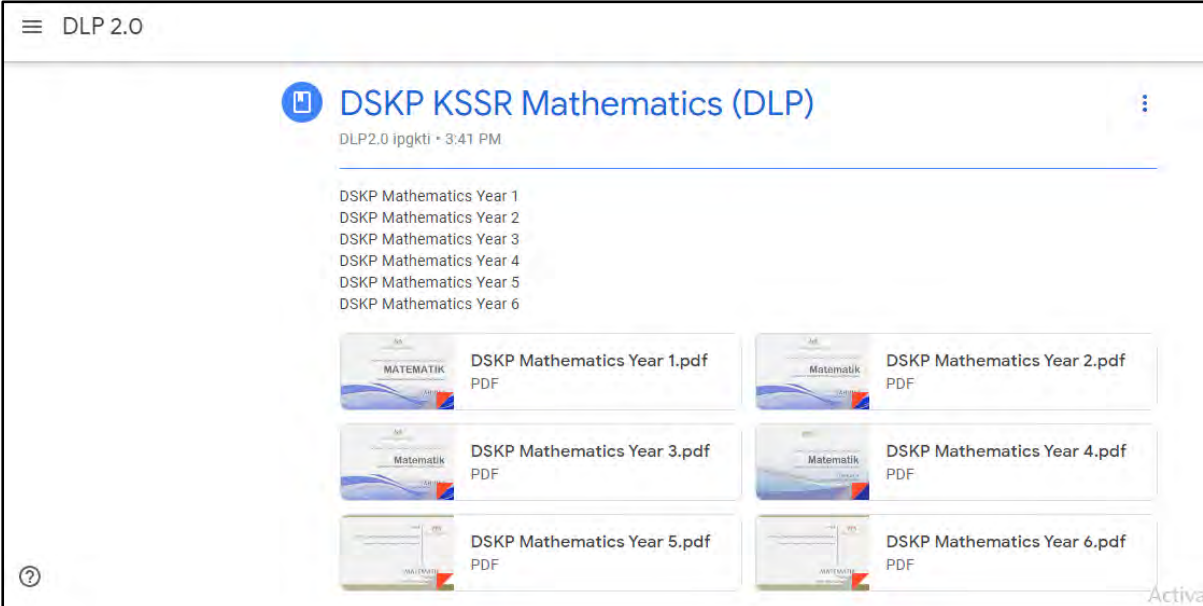
| DURATION | CONTENT | ACTIVITY | RESOURCES |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 hour 30 minutes | <p>Knowing learning areas in <i>DSKP Matematik</i> and Digital Textbooks</p> <p>Seeing mathematics in real life</p> <p>Relating the learning areas to real-life scenarios</p> <p>Creating problem solving questions in English</p> | <ol style="list-style-type: none"> CPs scrutinize DSKP and digital textbooks attached in Google Classroom Slot 1b (<i>Resource 1B-1</i>). CPs view the videos about Real-Life Math (<i>Resource 1B-2</i>). CPs discuss in groups about how mathematics knowledge and skills are applied in real-life based on their respective groups' designated learning areas. CPs randomly share the outcome of the group discussion. CPs go to slot 1b Activity "I Spy with My Eyes - Mathematics is Everywhere!" Google Slides (<i>Resource 1B-3</i>) according to the shapes they held in previous slot. CPs may use text, image, audio, video or chart to capture or describe the real-life scenario onto their respective slides. CPs create a problem solving question in English using the real-life scenario on the same slide. | <p><u>Resource 1B-1:</u></p> <ol style="list-style-type: none"> <i>DSKP KSSR Matematik</i> Year 1 to 6 <i>DSKP KSSM Matematik</i> Form 1 to 3 Digital Textbooks <p><u>Resource 1B-2:</u></p> <p>"Real-Life Math" videos</p> <ol style="list-style-type: none"> Real-Life Math Zoo Keeper (Primary School) Real-Life Math Production Scheduler (Primary School) Real-Life Math Radiologist (Secondary School) Real-Life Math Dentist (Secondary School) <p><u>Resource 1B-3:</u></p> <p>"Mathematics is Everywhere" Google Slides Template</p> |



Resource 1B-1

DSKP and Digital Textbooks

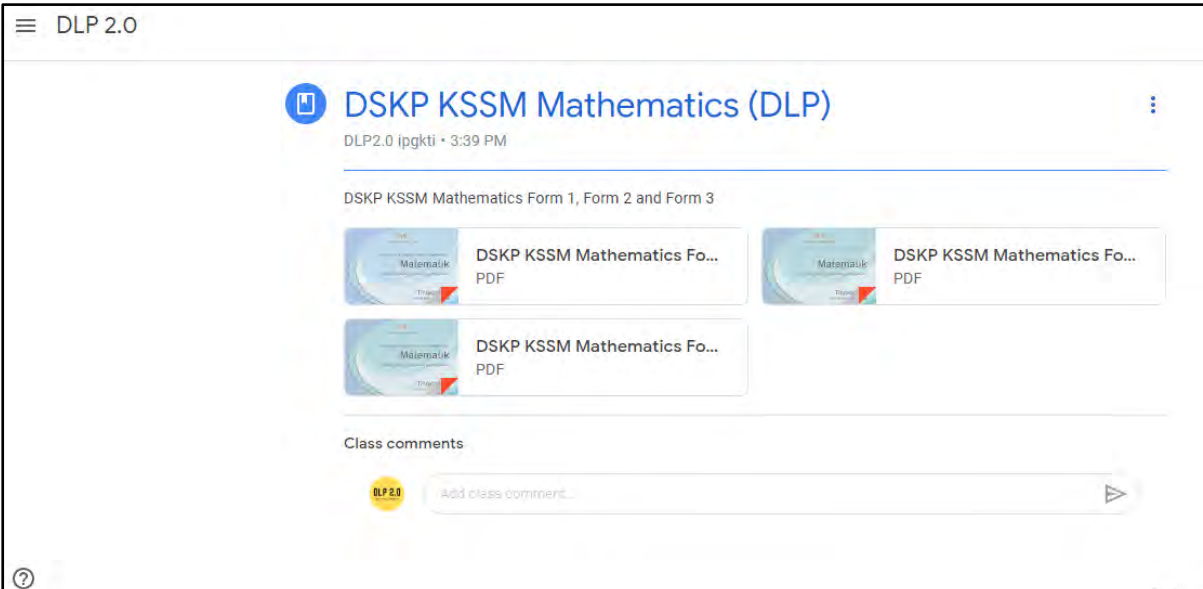
a. DSKP KSSR Matematik (DLP) Year 1 to Year 6



The screenshot shows the DLP 2.0 interface for 'DSKP KSSR Mathematics (DLP)'. The title bar indicates 'DLP 2.0'. Below the title, there is a list of resources: DSKP Mathematics Year 1, Year 2, Year 3, Year 4, Year 5, and Year 6. Each resource is represented by a PDF icon and a title. The resources are displayed in a grid format.

| Resource Title | Format |
|-------------------------|--------|
| DSKP Mathematics Year 1 | PDF |
| DSKP Mathematics Year 2 | PDF |
| DSKP Mathematics Year 3 | PDF |
| DSKP Mathematics Year 4 | PDF |
| DSKP Mathematics Year 5 | PDF |
| DSKP Mathematics Year 6 | PDF |

b. DSKP KSSM Matematik (DLP) Form 1 to Form 3



The screenshot shows the DLP 2.0 interface for 'DSKP KSSM Mathematics (DLP)'. The title bar indicates 'DLP 2.0'. Below the title, there is a list of resources: DSKP KSSM Mathematics Form 1, Form 2 and Form 3. Each resource is represented by a PDF icon and a title. The resources are displayed in a grid format.

| Resource Title | Format |
|-------------------------------------------------|--------|
| DSKP KSSM Mathematics Form 1, Form 2 and Form 3 | PDF |

Below the resources, there is a section for 'Class comments' with a text input field and a submit button.

c. Digital Textbooks

Bahagian Buku Teks Kementerian Pelajaran Malaysia. Digital Textbooks Sekolah Rendah (Tahun 1- Tahun 6) dan Sekolah Menengah (Peralihan, Tingkatan1 – Tingkatan 6).

<https://drive.google.com/drive/folders/1GSzVvYVouAhBLfL3k33dtxqqQtFlhYVgX?usp=sharing>



Resource 1B-2

“Real-life Math” Videos

a. Real-Life Math Zoo Keeper (Primary School)

<https://www.pbslearningmedia.org/resource/mkaet.math.md.zkbirds/real-life-math-zoo-keeper-birds/>

b. Real-Life Math Production Scheduler (Primary School)

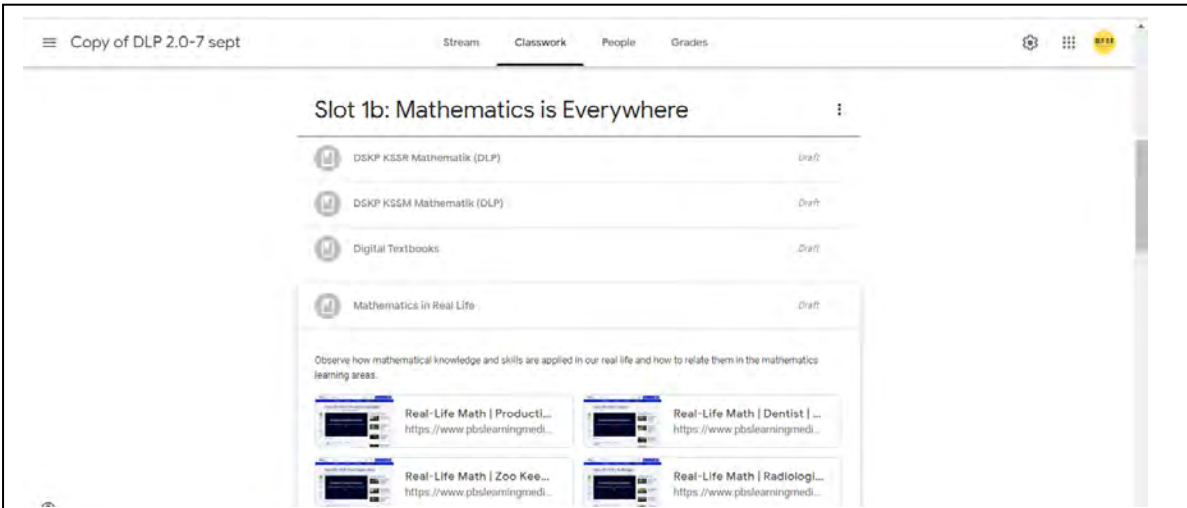
<https://www.pbslearningmedia.org/resource/mkaet.math.rp.productionscheduler/real-life-math-production-scheduler/>

c. Real-Life Math Radiologist (Secondary School)

<https://www.pbslearningmedia.org/resource/mkaet-math-rp-radiologist/real-life-math-radiologist/>

d. Real-Life Math Dentist (Secondary School)

<https://www.pbslearningmedia.org/resource/mkaet.math.rp.dentist/real-life-math-dentist/>



The screenshot displays a learning management system interface. At the top, there is a navigation bar with the text 'Copy of DLP 2.0-7 sept' and tabs for 'Stream', 'Classwork', 'People', and 'Grades'. The main content area is titled 'Slot 1b: Mathematics is Everywhere'. Below the title, there is a list of resources, each with a document icon and the text 'Draft':

- DSKP KSSR Matematik (DLP)
- DSKP KSSM Matematik (DLP)
- Digital Textbooks
- Mathematics in Real Life

Below the list, there is a section titled 'Observe how mathematical knowledge and skills are applied in our real life and how to relate them in the mathematics learning areas.' This section contains four video thumbnails, each with a title and a URL:

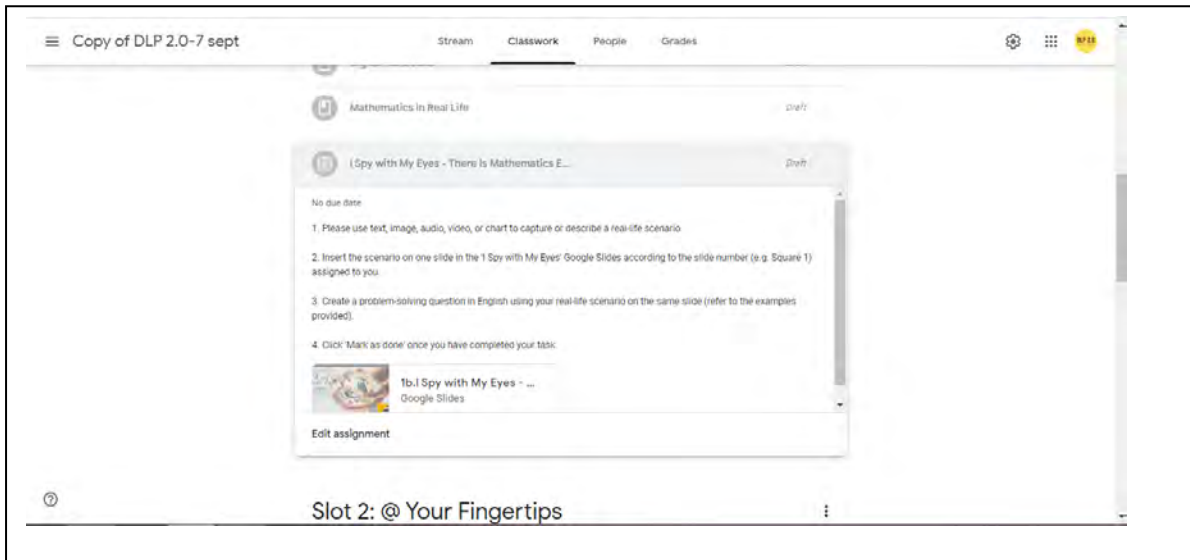
- Real-Life Math | Producti...
<https://www.pbslearningmedi...>
- Real-Life Math | Dentist | ...
<https://www.pbslearningmedi...>
- Real-Life Math | Zoo Kee...
<https://www.pbslearningmedi...>
- Real-Life Math | Radiolog...
<https://www.pbslearningmedi...>



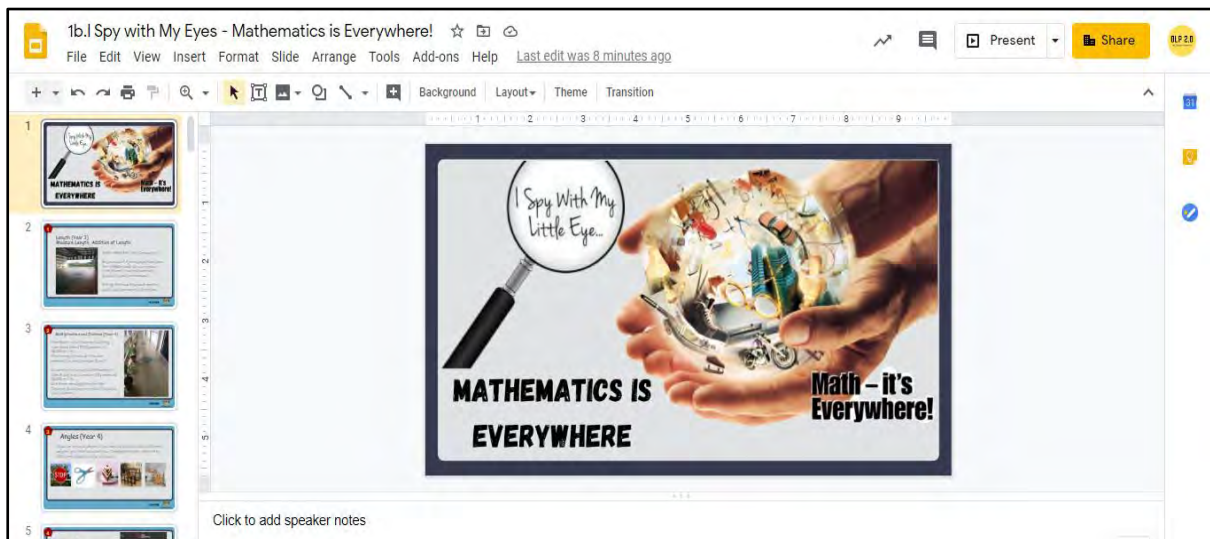
Resource 1B-3

“Mathematics is Everywhere” Google Slides Template

Slot 1b in Google Classroom



“Mathematics is Everywhere” Google Slides



SLOT 2

DIGITAL LEARNING RESOURCES

| Title | @ Your Fingertips |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Synopsis | This slot exposes CPs to the existing digital learning resources (Khan Academy, PBS Learning Media, GeoGebra) that would support mathematical conceptual understanding and learning activities in English. CPs are required to integrate the digital learning resources in Google Classroom. |
| Learning Outcomes | At the end of this session CPs would be able to: <ol style="list-style-type: none"> 1. attain relevant digital learning resources to support learning activities in English. 2. integrate digital learning resources in Google Classroom. |
| Duration | 2 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks and group discussions. |

SLOT 2

TITLE : @ YOUR FINGERTIPS

| DURATION | CONTENT | ACTIVITY | RESOURCES |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 hour 15 minutes | Digital learning resources from: <ul style="list-style-type: none"> • Khan Academy • PBS Learning Media • GeoGebra | <ol style="list-style-type: none"> Facilitator shares an overview on how to attain digital learning resources from Khan Academy to support learning activities. (<i>Resource 2A-1</i>) CPs try out all the instructions in the PowerPoint Presentations. (<i>Resource 2A-2</i>) Facilitator and CPs repeat Step 1 and 2 with digital learning resources from: <ol style="list-style-type: none"> PBS Learning Media <i>Resource 2B-1, Resource 2B-2</i> GeoGebra <i>(Resource 2C-1, Resource 2C-2)</i> | <p><u>Resource 2A-1:</u> Attached video (https://youtu.be/4e1e7I2Gs2I)</p> <p><u>Resource 2A-2:</u> Khan Academy Integration Guideline</p> <p><u>Resource 2B-1:</u> Attached video (https://youtu.be/168q60iSnRE)</p> <p><u>Resource 2B-2:</u> PBS Learning Media Integration Guideline</p> |
| 45 minutes | My GC with Digital Learning Resources | <ol style="list-style-type: none"> Each group is divided into 3 sub-groups to explore and attain suitable digital learning resources for the topic assigned during Slot 1. (≈ 30 min) Subgroup 1: Khan Academy Subgroup 2: PBS Learning Media Subgroup 3: GeoGebra Each CP is required to: <ol style="list-style-type: none"> take a screenshot of the classwork in his/her Google Classroom that displays the integration of the selected learning resource. paste it onto the respective slide in Google Slide titled 'My GC with Digital Learning Resources' | <p><u>Resource 2C-1:</u> Attached video (https://youtu.be/c0DPPY5bm0g)</p> <p><u>Resource 2C-2:</u> GeoGebra Integration Guideline</p> |

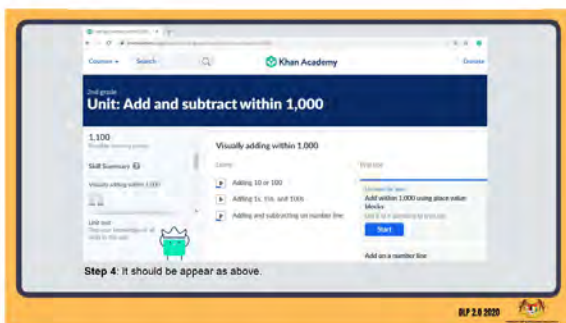
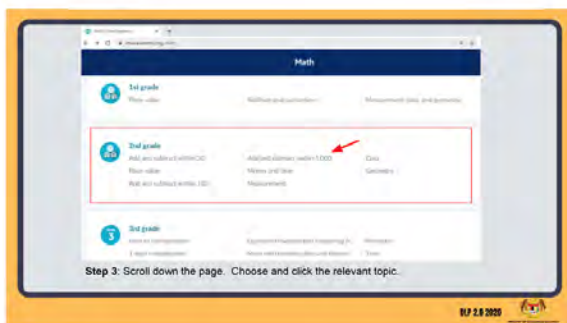
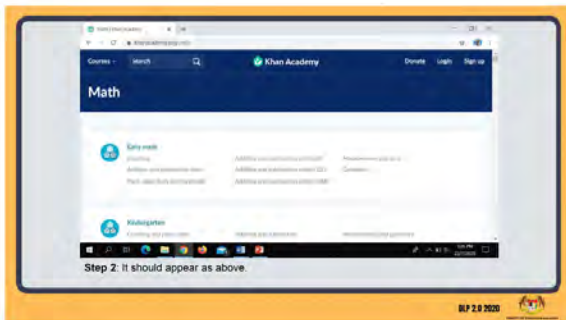
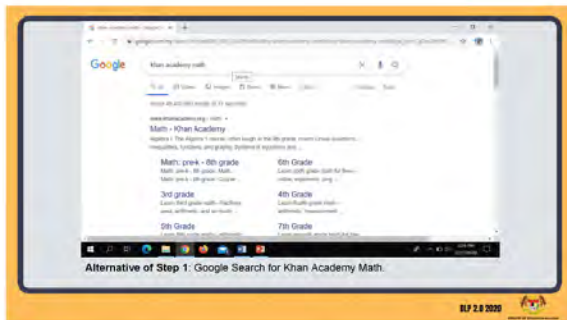
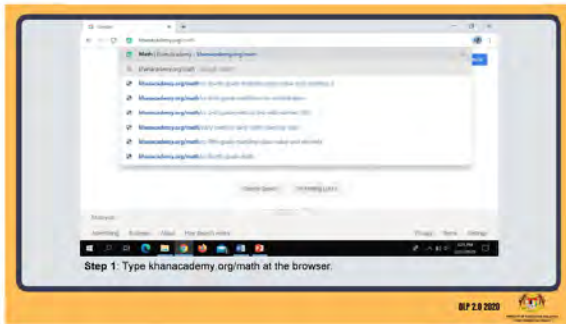
| DURATION | CONTENT | ACTIVITY | RESOURCES |
|----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| | | <p><i>Tip: Screenshot using the Print Screen key (Prt Scr / prt sc) and paste it using ctrl + v.</i></p> <p>6. Facilitator shares the Google Slide, 'My GC With Digital Learning Resources'. CP is randomly picked from each group to explain the selected digital learning resources.</p> <p><i>Note: The selection of digital learning resources may vary depends on each CP's purpose, necessity and flexibility to support a learning activity. For example, CP may choose the resources such as follows:</i></p> <ul style="list-style-type: none"> - videos from Khan Academy and PBS Learning Media for language support - interactive from GeoGebra for conceptual understanding <p>Optional:</p> <p>CPs may also explore other resources in the following websites:</p> <ul style="list-style-type: none"> i. School Yourself http://schoolyourself.org/ ii. Sheppard Software https://www.sheppardsoftware.com/ iii. Math Playground https://www.mathplayground.com/ iv. Interactive Teaching Programs https://www.stem.org.uk/cx5es v. National Library of Virtual Manipulatives (open with Internet | |

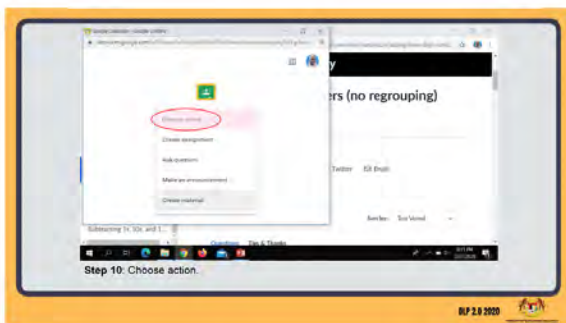
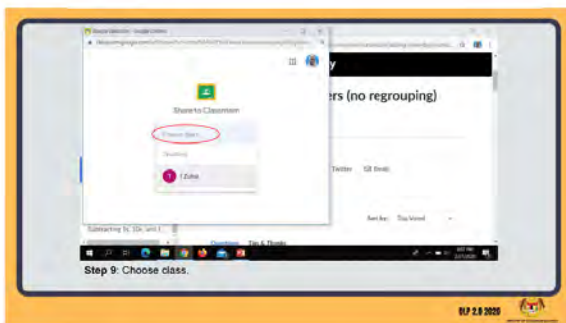
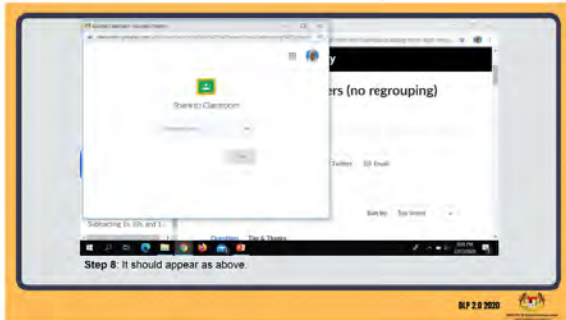
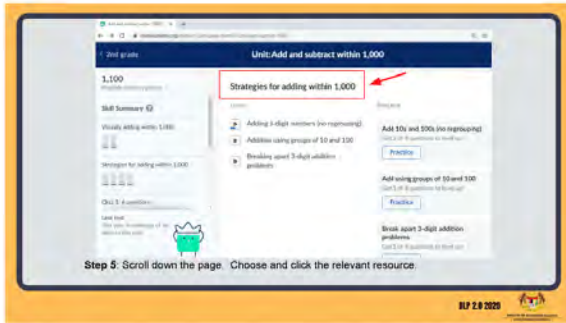
| DURATION | CONTENT | ACTIVITY | RESOURCES |
|----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| | | <p>Explorer only, install and enable Java) http://nlvm.usu.edu/en/nav/vlibrary.html</p> <p>vi. Math Antics https://mathantics.com/</p> <p>vii. Math Is Fun https://www.mathsisfun.com/</p> <p>viii. TED Ed https://ed.ted.com/</p> | |

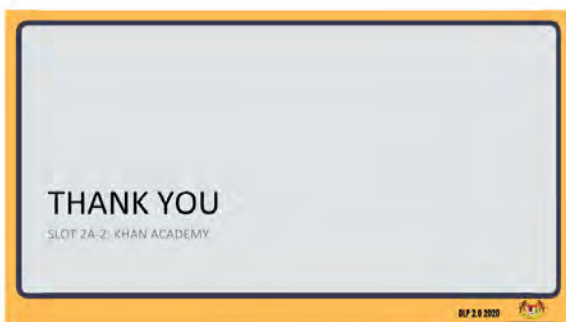
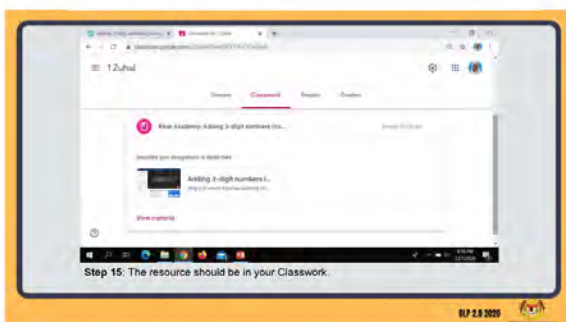
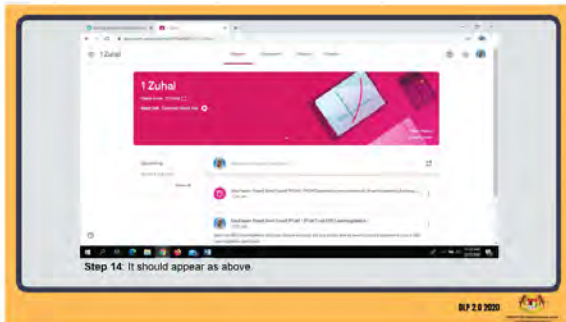
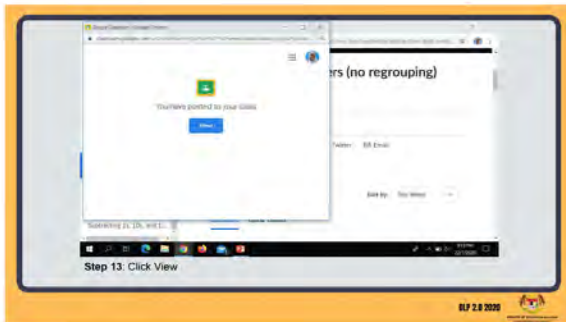
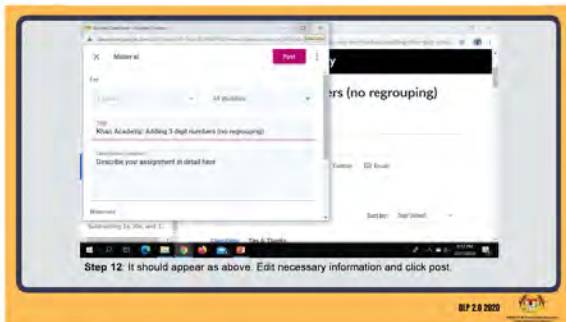
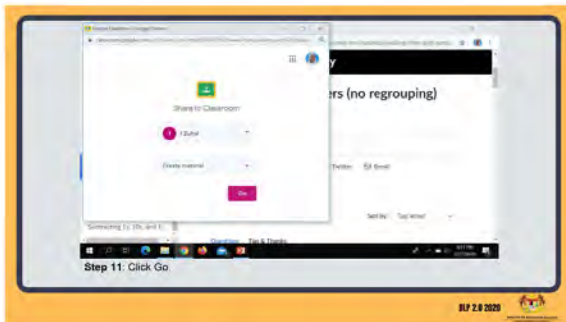


Resource 2A-2

Khan Academy Integration Guideline



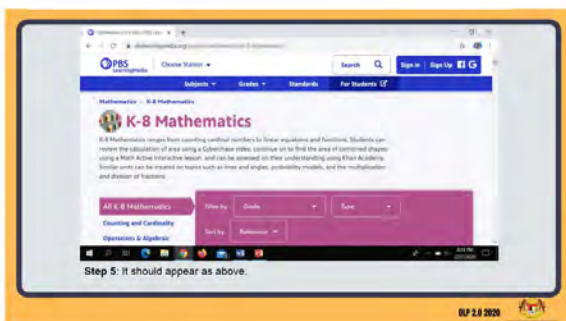
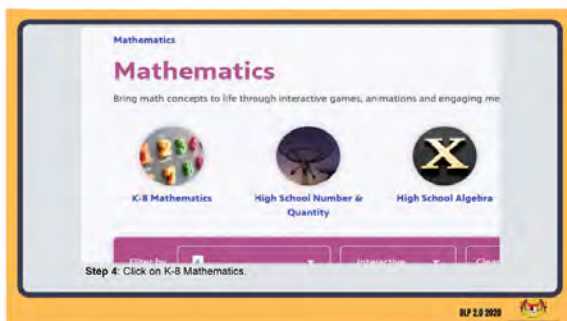
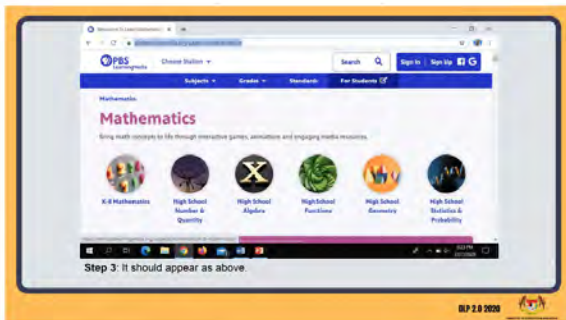
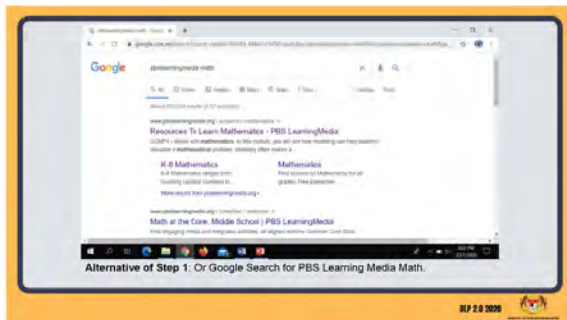
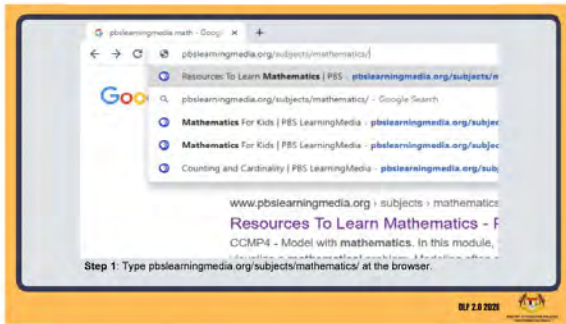


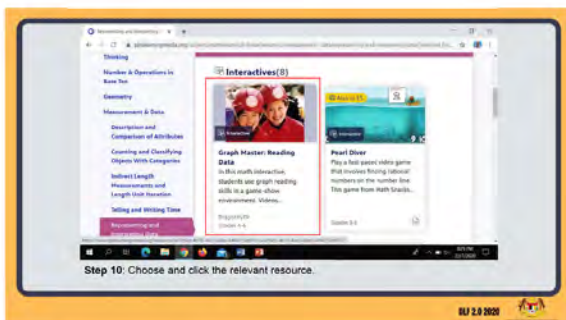
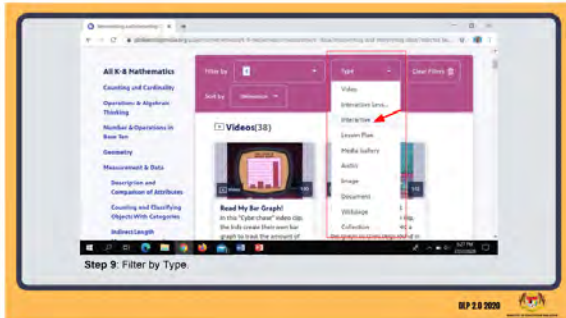
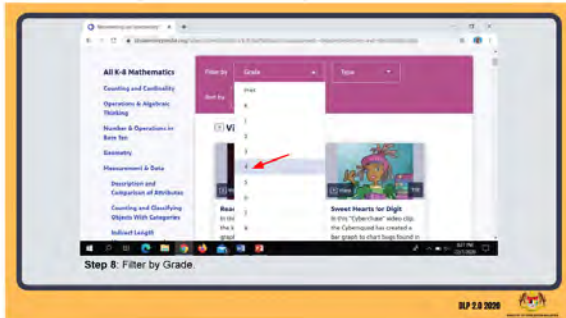
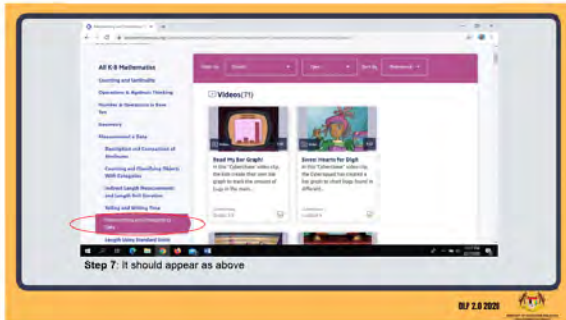
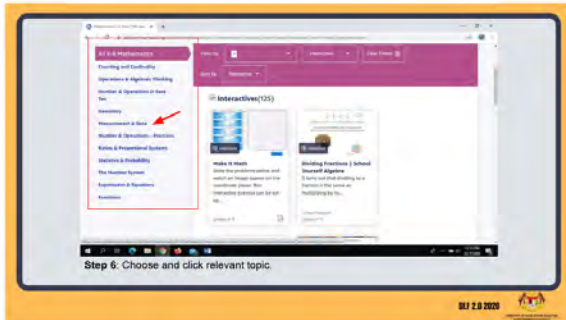


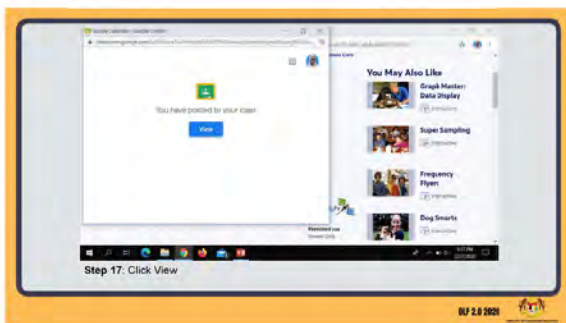
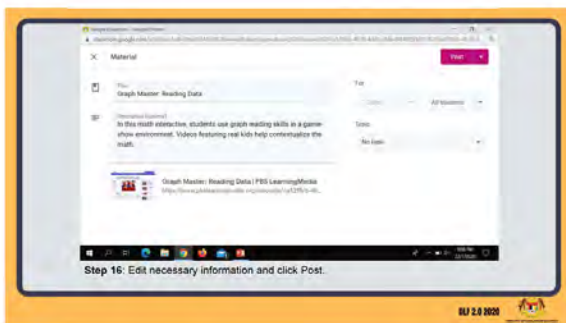
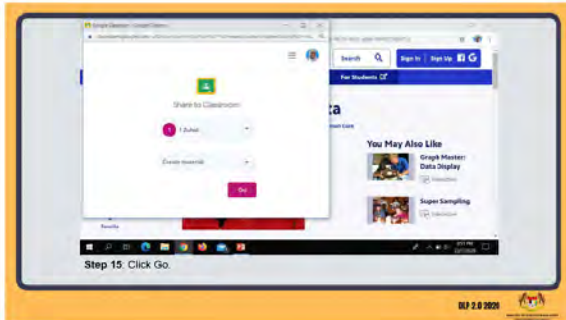
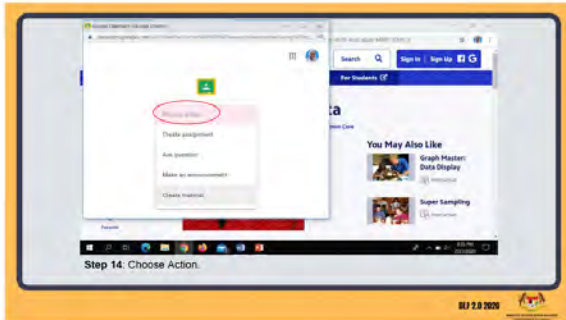
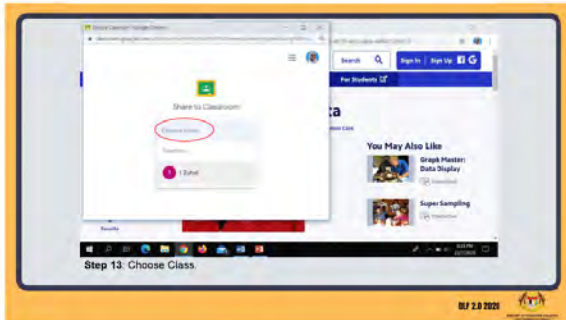


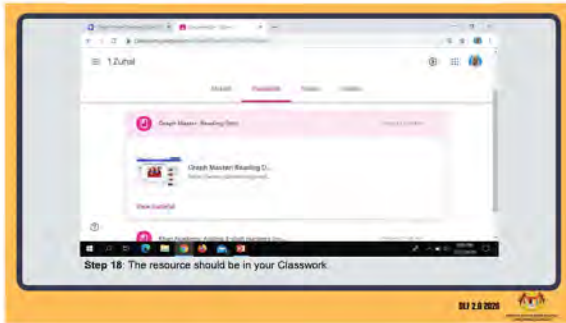
Resource 2B-2

PBS Learning Media Integration Guideline





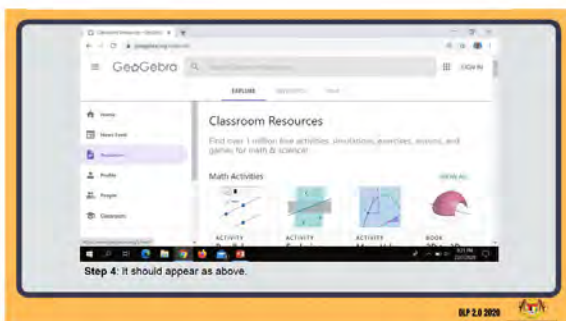
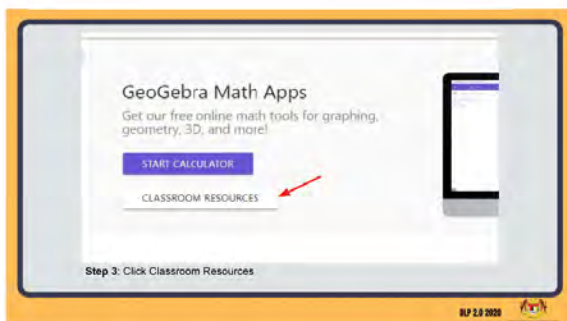
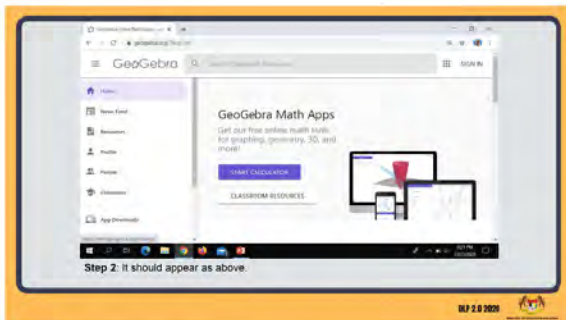
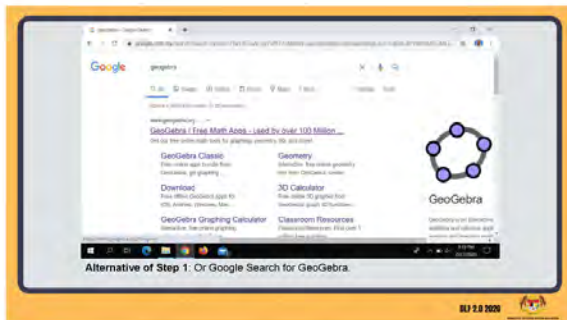
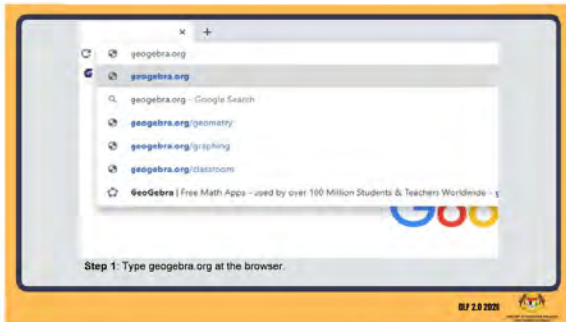


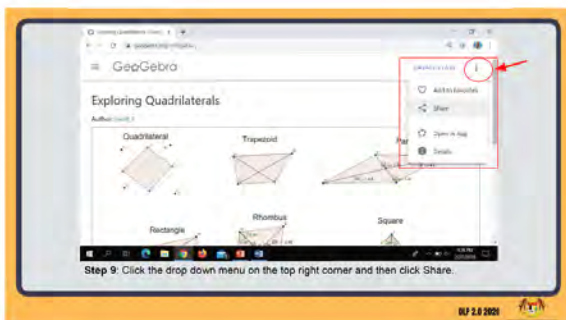
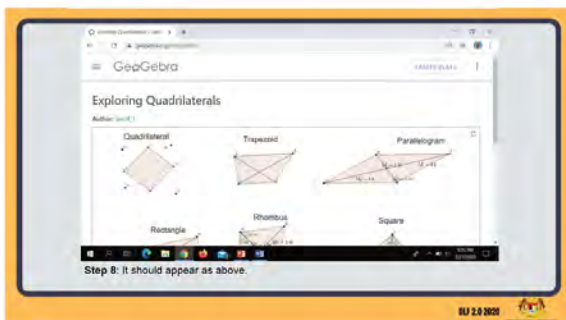
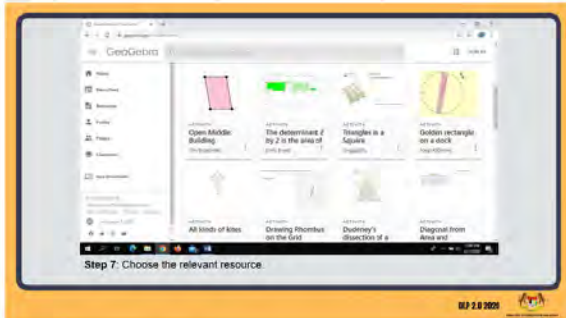
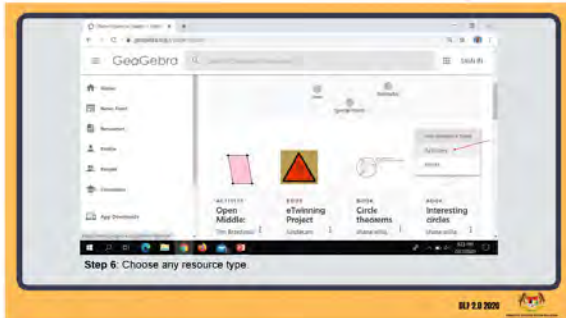
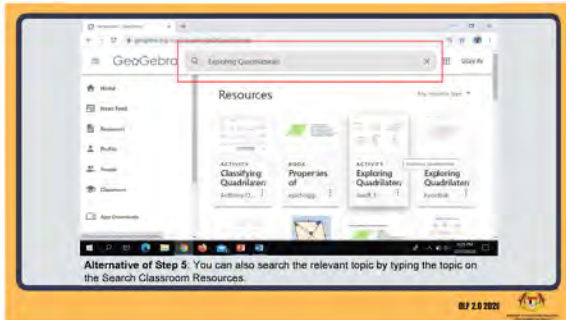
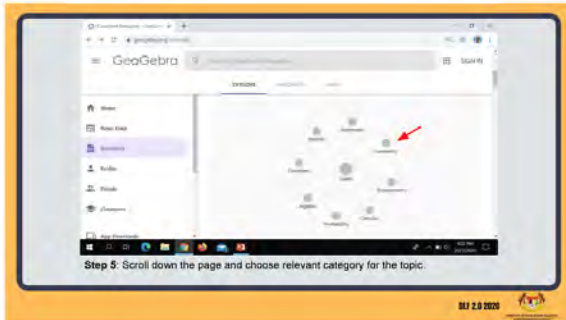


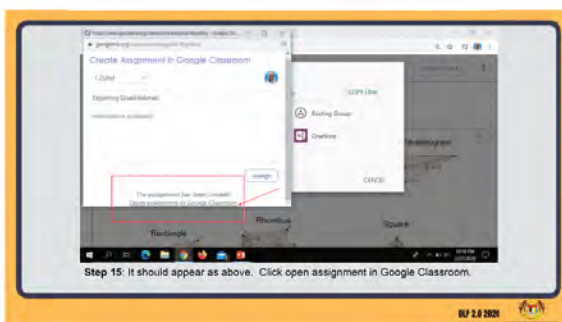
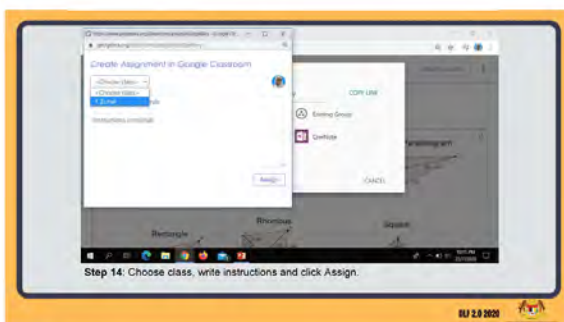
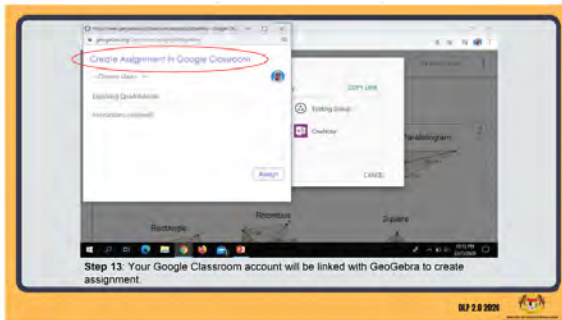
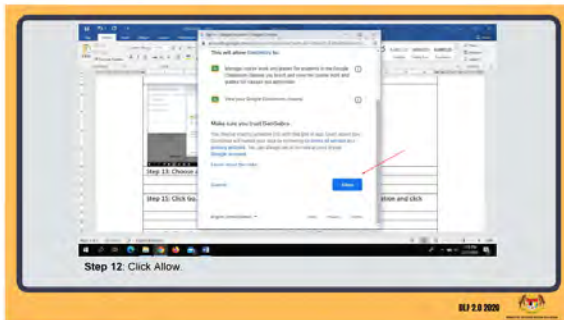
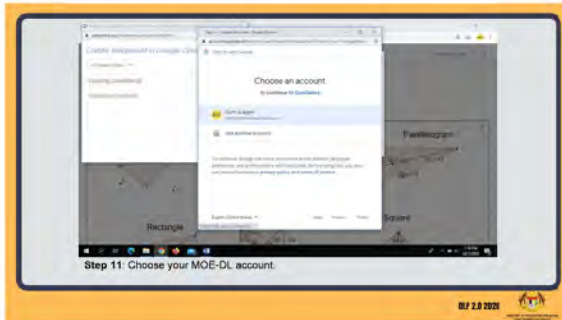
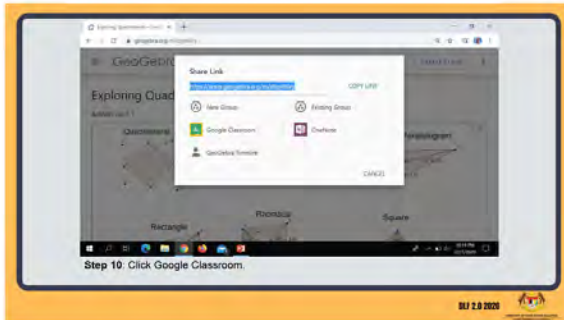


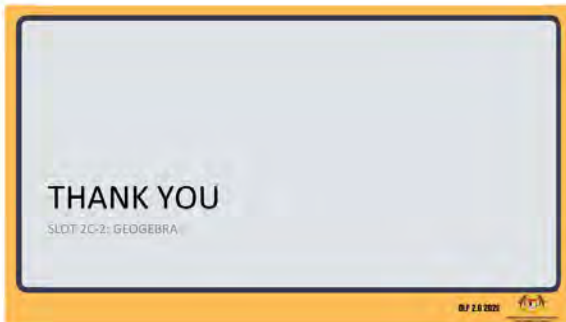
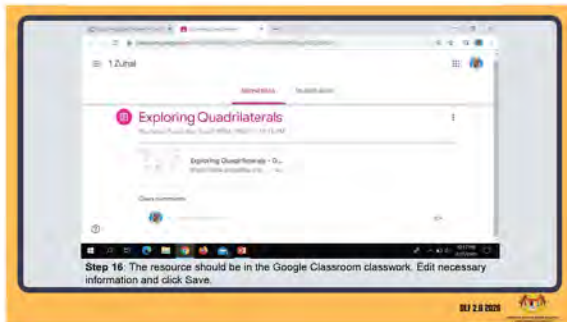
Resource 2C-2

GeoGebra Integration Guideline









SLOT 3

EFFECTIVE QUESTIONS AND FEEDBACK

| Title | Ask It Right I |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Synopsis | This slot exposes CPs to effective questioning techniques and constructive feedback. CPs are required to analyse learning activities videos on effective questions and constructive feedback using mathematical language in English. |
| Learning Outcomes | At the end of this session CPs would be able to determine effective questions and constructive feedback using the English language to promote mathematical thinking. |
| Duration | 2 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Minds-on activities, online tasks and group discussion. |

SLOT 3

TITLE : ASK IT RIGHT I

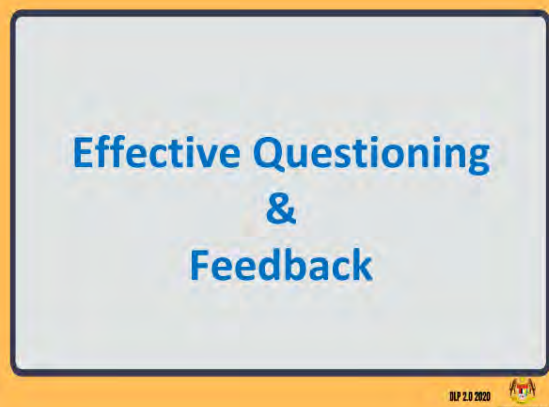
| DURATION | CONTENT | ACTIVITY | RESOURCES |
|----------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 hour | Effective Questioning and Feedback Can You Ask It Right? | <ol style="list-style-type: none"> CPs sit in groups as assigned in Slot 1 Facilitator explains how to use effective questioning techniques and feedback (<i>Resource 3-1</i>). CPs are given two problems. Problem 1 for secondary school teachers and problem 2 for primary school teachers (<i>Resource 3-2</i>). CPs work in their groups to create a set of effective questions that would assist students to understand and solve the mathematical problem. A representative of each group submits the set of questions constructed into Google Classroom. | <p><u>Resource 3-1:</u> Sharing effective questioning and feedback</p> <p><u>Resource 3-2:</u> Problem 1 for secondary school teachers Problem 2 for primary school teachers</p> |
| 1 hour | Did I Ask It Right? | <ol style="list-style-type: none"> CPs watch the videos related to a mathematics learning activity. (<i>Resource 3-3</i>) In groups, CPs compare their set of questions with the questions posed by the teachers in the videos. A representative of each group submits the outcome of the comparison into Google Classroom. | <p><u>Resource 3-3:</u> Video 1 for secondary teachers (https://www.youtube.com/watch?v=RmPuDiOF6vE)</p> <p>Video 2 for primary teachers (https://www.youtube.com/watch?v=0fM8ukQ5uw)</p> |

| | | | |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>9. Facilitator facilitates discussion on the following aspects:</p> <ul style="list-style-type: none"> a. effective questions employed b. questions that need improvement | <p>Credits to YouTube channel:</p> <ul style="list-style-type: none"> i. TeachnKidsLearn: Using Math Problem Solving and Student Discourse ii. Toni Osterbuhr: Number Talks, 1st Grade Example |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Resource 3-1

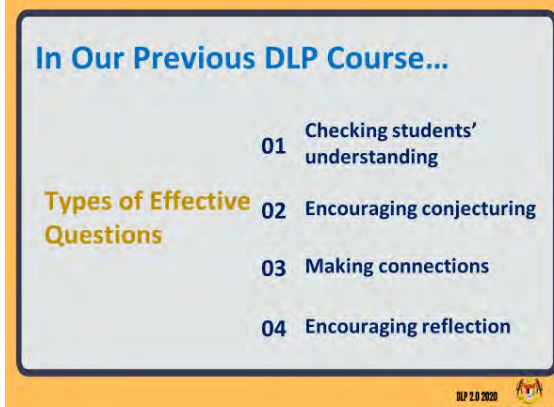
Sharing Effective Questioning and Feedback



**Effective Questioning
&
Feedback**

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1



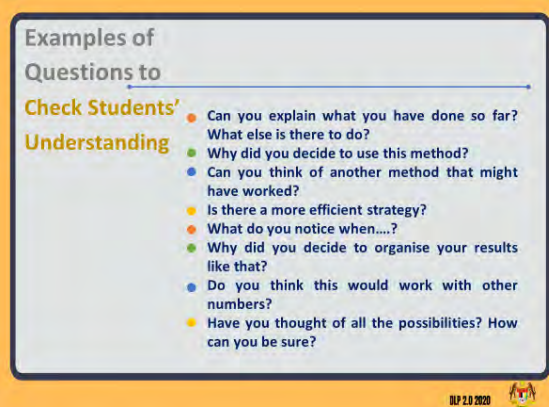
In Our Previous DLP Course...

Types of Effective Questions

- 01 Checking students' understanding
- 02 Encouraging conjecturing
- 03 Making connections
- 04 Encouraging reflection

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2



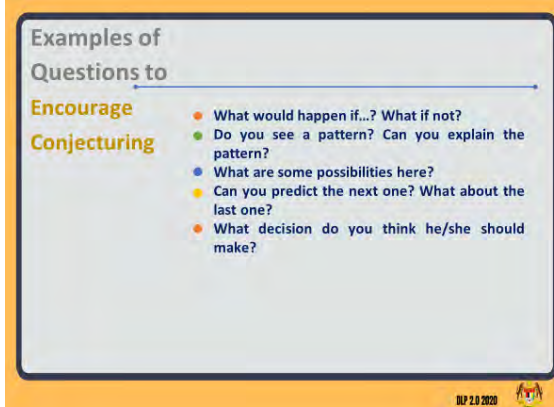
Examples of Questions to

Check Students' Understanding

- Can you explain what you have done so far? What else is there to do?
- Why did you decide to use this method?
- Can you think of another method that might have worked?
- Is there a more efficient strategy?
- What do you notice when....?
- Why did you decide to organise your results like that?
- Do you think this would work with other numbers?
- Have you thought of all the possibilities? How can you be sure?

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3



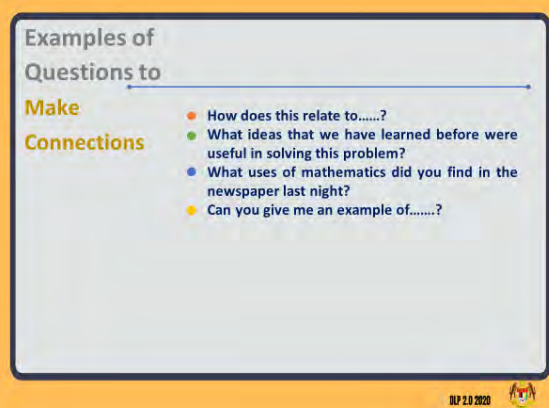
Examples of Questions to

Encourage Conjecturing

- What would happen if...? What if not?
- Do you see a pattern? Can you explain the pattern?
- What are some possibilities here?
- Can you predict the next one? What about the last one?
- What decision do you think he/she should make?

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4



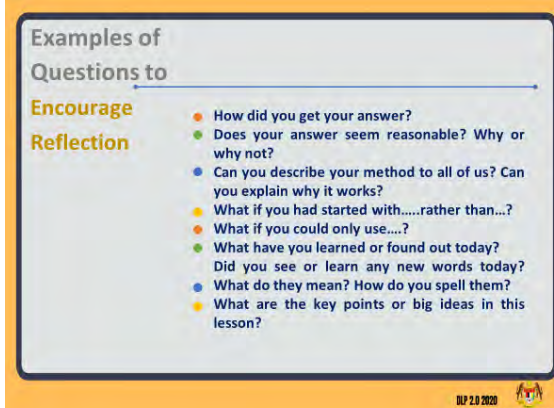
Examples of Questions to

Make Connections

- How does this relate to.....?
- What ideas that we have learned before were useful in solving this problem?
- What uses of mathematics did you find in the newspaper last night?
- Can you give me an example of.....?

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5



Examples of Questions to

Encourage Reflection

- How did you get your answer?
- Does your answer seem reasonable? Why or why not?
- Can you describe your method to all of us? Can you explain why it works?
- What if you had started with.....rather than....?
- What if you could only use....?
- What have you learned or found out today? Did you see or learn any new words today?
- What do they mean? How do you spell them?
- What are the key points or big ideas in this lesson?


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6

“A question posed by a teacher could fall under a few categories”


Example:
“Why did you decide to use this method?” could fall under

- check students’ understanding
- encourage reflection




7

**How can we relate these questions with
The Revised Bloom’s Taxonomy
and
The Processes of Thoughtful Learning?**




8

A question posed by a teacher...
may assess more than ONE level of the Revised Bloom’s Taxonomy (2001)




<https://pbs.twimg.com/media/Dqm2nOgX0AEEN39.jpg>




9

A question posed by a teacher...
may promote more than ONE process of thoughtful learning




Framework of the KSSR Matematik



10

Let’s look at a few examples of questions posed by teachers




11

Example 1:
Do you think this would work with other numbers?

Level: Understand
Pupils select another number to test the same method/ technique

Process of Thoughtful Learning:

- Representation



12

Example 1:
Do you think this would work with other numbers?

Level: Analyse
Pupils compare and contrast with other numbers and identify which type of number works or does not work

Process of Thoughtful Learning:

- Representation
- Connection
- Reasoning

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Example 2:
What if you had started with ... rather than ...?

Level: Understand
Pupils try out the given suggestion by the teacher and see if it works

Process of Thoughtful Learning:

- Representation

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Example 2:
What if you had started with ... rather than ...?

Level: Analyse
Pupils compare and contrast the suggestion given with their own ideas and determine which part of the problem is relevant

Process of Thoughtful Learning:

- Representation
- Communication
- Reasoning
- Connection

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Example 2:
What if you had started with ... rather than ...?

Level: Evaluate
Pupils defend or critique the suggestion given with their own ideas and justify its effectiveness

Process of Thoughtful Learning:

- Representation
- Communication
- Reasoning
- Problem Solving

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Example 3:
Can you think of another method that might work?

Level: Evaluate
Pupils defend their ideas and justify its effectiveness

Process of Thoughtful Learning:

- Representation
- Connection
- Communication
- Reasoning
- Problem Solving

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Example 3:
Can you think of another method that might work?

Level: Create
Pupils develop another method

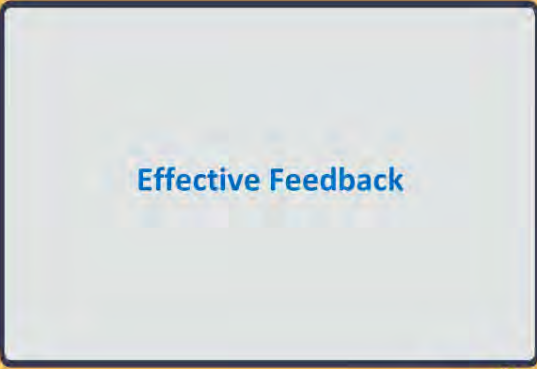
Process of Thoughtful Learning:


- Representation
- Reasoning
- Problem Solving

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Effective Feedback



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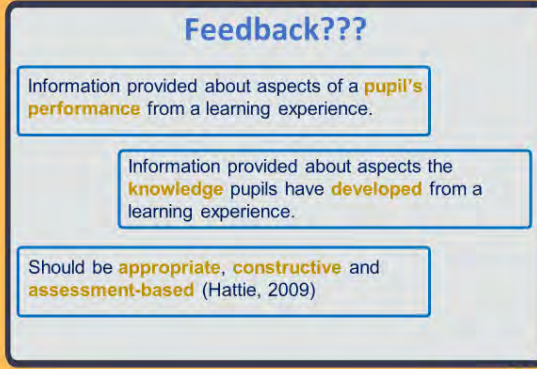
19


Feedback???

Information provided about aspects of a **pupil's performance** from a learning experience.

Information provided about aspects the **knowledge** pupils have **developed** from a learning experience.

Should be **appropriate, constructive** and **assessment-based** (Hattie, 2009)



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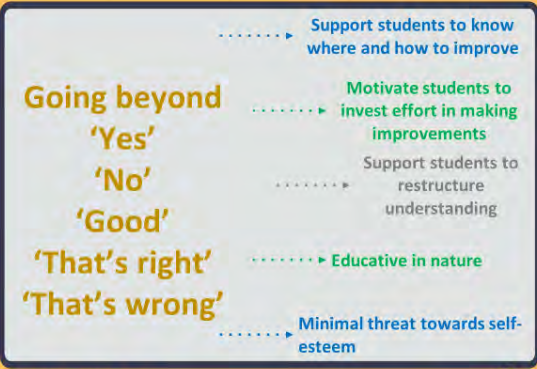
20


Going beyond

-▶ Support students to know where and how to improve
-▶ Motivate students to invest effort in making improvements
-▶ Support students to restructure understanding
-▶ Educative in nature
-▶ Minimal threat towards self-esteem

'Yes'
'No'
'Good'
'That's right'
'That's wrong'

theeducationhub.org.nz



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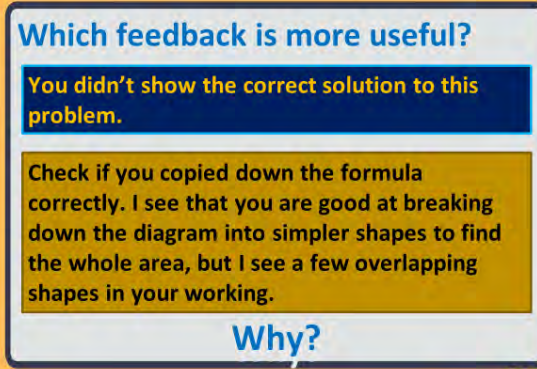
21


Which feedback is more useful?

You didn't show the correct solution to this problem.

Check if you copied down the formula correctly. I see that you are good at breaking down the diagram into simpler shapes to find the whole area, but I see a few overlapping shapes in your working.

Why?



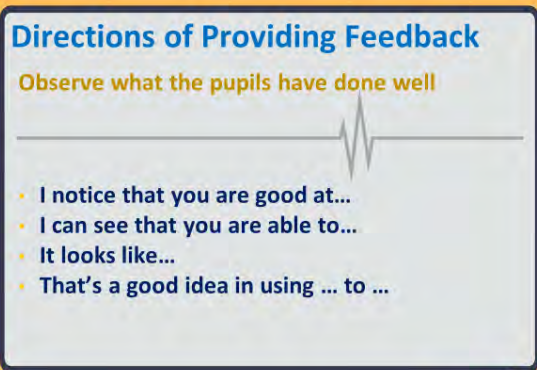
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22

Directions of Providing Feedback

Observe what the pupils have done well

- I notice that you are good at...
- I can see that you are able to...
- It looks like...
- That's a good idea in using ... to ...

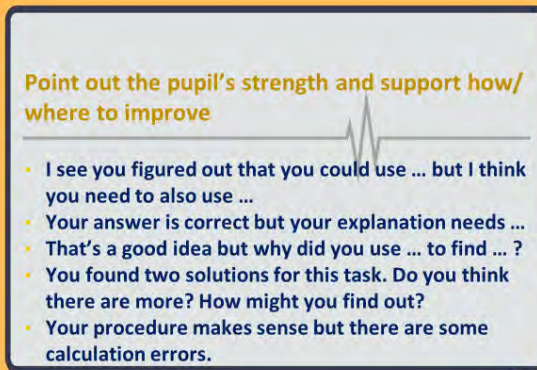



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Point out the pupil's strength and support how/where to improve

- I see you figured out that you could use ... but I think you need to also use ...
- Your answer is correct but your explanation needs ...
- That's a good idea but why did you use ... to find ... ?
- You found two solutions for this task. Do you think there are more? How might you find out?
- Your procedure makes sense but there are some calculation errors.

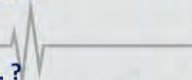


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24

Support pupils to restructure their understanding

- Why did you use ... to find ... ?
- How do you know that ... is the answer?
- I don't really understand you. Draw it so we can see your thinking.
- Does anyone have a different method of solving this?
- Do you agree with this? (ask other pupils)

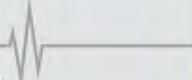


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25

Support pupils to elaborate

- Why? Explain more about ...
- How did you do it?
- Can you give me more examples of ... besides?
- How is ... like ...?
- How is ... different from ...?
- What other ways can you use instead of ...?



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“Give enough feedback so that they understand what to do but not so much that the work has been done for them by you.”

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THANK YOU

Credits:
Slide design: allppt.com

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Notes Slides on Sharing Effective Questioning and Feedback



Resource 3-2

Can You Ask It Right?

Problem 1:

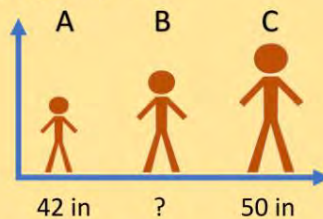
The sum of three consecutive integers is 81.

Find the three numbers.

Problem 1 for secondary school teachers

Problem 2:

Ms. Junker measures the height of three 1st graders.



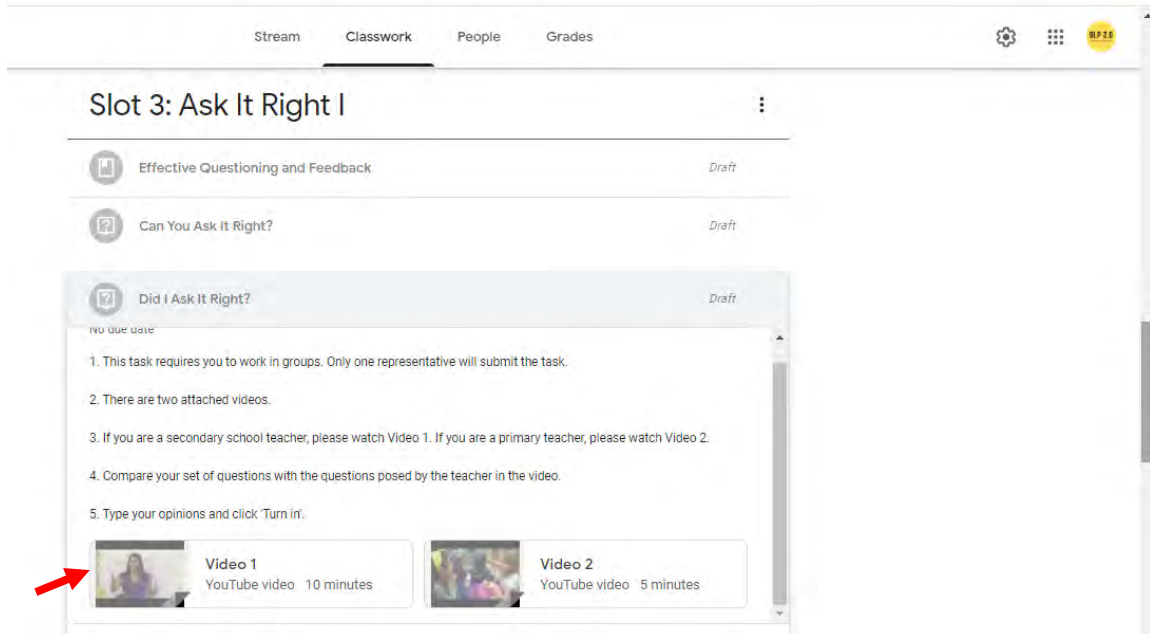
What might be the height of person B?

Problem 2 for primary school teachers



Resource 3-3

Did I Ask It Right?



Stream Classwork People Grades

Slot 3: Ask It Right I

- Effective Questioning and Feedback *Draft*
- Can You Ask It Right? *Draft*
- Did I Ask It Right?** *Draft*

no due date

1. This task requires you to work in groups. Only one representative will submit the task.
2. There are two attached videos.
3. If you are a secondary school teacher, please watch Video 1. If you are a primary teacher, please watch Video 2.
4. Compare your set of questions with the questions posed by the teacher in the video.
5. Type your opinions and click 'Turn In'.

Video 1
YouTube video 10 minutes

Video 2
YouTube video 5 minutes

SLOT 4

QUESTIONING AND FEEDBACK

| | |
|--------------------------|---------------------------------------------------------------------------------------------------------------|
| Title | Ask It Right II |
| Synopsis | This slot requires CPs to create effective questions that would assist students to solve a real-life problem. |
| Learning Outcomes | At the end of this session CPs would be able to create effective questions using the English language. |
| Duration | 2 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Minds-on activities, online tasks and group discussions. |

SLOT 4

TITLE : ASK IT RIGHT II

| DURATION | CONTENT | ACTIVITY | RESOURCES |
|-------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 hour 30 minutes | Create Effective Questions | <p>1. CPs sit in pairs.</p> <p>2. Each CP refers to their own real-life problem created in slot 1b and constructs a list of effective questions that could assist students to understand and solve the problem.</p> <p>3. Then, CPs refers to their partner's real-life problem created in slot 1b and constructs a list of effective questions that could assist students to understand and solve the problem.</p> <p>4. Each pair compares and improvises their lists of questions constructed.</p> <p>5. CPs submit their own list of questions in the respective slides in Google Classroom.</p> <p>6. CPs are randomly selected to simulate the questions constructed.</p> <p>7. Facilitators and CPs provide feedback.</p> | <p><u>Resource 4-1:</u> Google Slide 'I Spy With My Eyes' from Slot 1b</p> <p><u>Resource 4-2:</u> 'Create Effective Questions' in Google Classroom</p> |
| 30 minutes | | | |

SLOT 5

LET'S PLAN IT

| | |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title | LET'S PLAN IT |
| Synopsis | This slot requires CPs to design a real-life problem related to mathematics and plan the learning activity using English as the instructional language. CPs are required to source for digital learning resources, design effective questions and constructive feedback for a possible scenario in the plan. |
| Learning Outcome | At the end of this session CPs would be able to: <ol style="list-style-type: none"> 1. design a real-life problem related to mathematics using English language. 2. plan a learning activity to solve the problem. 3. source for digital learning resources, pose effective questions and constructive feedback for a possible scenario in the plan. |
| Duration | 2 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks and group discussions. |

SLOT 5

TITLE : LET'S PLAN IT

| DURATION | CONTENT | ACTIVITY | RESOURCES |
|-------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1 hour 30 minutes | Planning a learning activity to solve a real-life problem. | <ol style="list-style-type: none"> 1. This is an individual work. 2. CPs are required to refer to the real-life problem designed in Slot 1. 3. CPs plan a learning activity to solve the problem. 4. CPs source for relevant learning resources from slot 2 and attach the link for the digital learning resources in the plan. 5. CPs design effective questions and prepare constructive feedback for a possible scenario. 6. CPs may view the Learning Activity Sample Plan (<i>Resource 5-1</i>) and prepare the individual learning activity plan using the Let's Plan It Template (<i>Resource 5-2</i>). | <p><u>Resource 5-1:</u> Learning activity sample plan</p> <p><u>Resource 5-2:</u> Let's Plan It template</p> |
| 30 minutes | Sharing of plan within the group | <ol style="list-style-type: none"> 7. CPs are required to submit the individual learning activity plan in Google Classroom upon completion. 8. CPs share, discuss and select the best learning activity plan as their group plan. | |



Resource 5-1

Learning Activity Sample Plan

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| YEAR/FORM | Year 2 | |
| LEARNING AREA | Numbers And Operations | |
| TOPIC | 3.0 Fractions and decimals | |
| CONTENT STANDARD | 3.1 Proper fractions | |
| LEARNING STANDARD | 3.1.5 Compare the value of two proper fractions | |
| LEARNING OBJECTIVES | To compare the value of fractions of different denominator | |
| REAL-LIFE PROBLEM | <p>Pn Farah makes two regular pizzas. Zarina takes $\frac{5}{8}$ of the first pizza and Zali takes $\frac{3}{4}$ of the second pizza. Who takes more?</p> | |
| TIME | 20 minutes | |
| ACTIVITY | SUGGESTED TEACHER'S COMMUNICATION | LEARNING/TEACHING RESOURCES (Concrete/Digital) |
| <p>Step 1 Real-life problem Teacher poses the problem</p> <p>Step 2 Recall prior knowledge Brainstorming: Fraction and examples of fraction</p> | <p>Pn Farah makes two regular pizzas. Zarina takes $\frac{5}{8}$ of the first pizza and Zali takes $\frac{3}{4}$ of the second pizza.</p> <ol style="list-style-type: none"> Who takes more? How do you know? <p>1. Could you please talk to each other about fractions of the same denominator? 2. Could you please talk to each other about fractions of the same numerator? 3. Give examples of these fractions. 4. Which fraction is the largest? How do you know? 5. From your answers, could anyone tell me which is larger, $\frac{3}{4}$ or $\frac{5}{8}$?</p> | |

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Scenario 1 Teacher guides the pupils to use diagram/fraction model to represent a given fraction ($\frac{3}{4}$ or $\frac{5}{8}$)</p> | <p>Scenario 1: No responses from the pupils</p> <ol style="list-style-type: none"> 1. What do you know about $\frac{3}{4}$? 2. May I have someone to state $\frac{3}{4}$ in word? 3. Rephrase your word/thinking 4. How do you show $\frac{3}{4}$? How about using concrete object? diagram? folded paper? fraction board? fraction model? 5. Given a piece of circular paper, can you show $\frac{3}{4}$? 6. What if you are given $\frac{5}{8}$? 7. What do you notice on the shaded regions? 8. Can you compare the values of the fractions now? | <p>Concrete learning resource: Groups of concrete objects, Various shapes of paper, Fraction board, Fraction model</p> <p>Digital learning resource: Geogebra Fraction Models (https://www.geogebra.org/m/MSFCTyph)</p> |
| <p>Scenario 2 Teacher guides the pupils to compare the shaded region</p> | <p>Scenario 2: Wrong answer/concept is given by the pupils</p> <ol style="list-style-type: none"> 1. How do you get the answer? 2. Do you agree with...? 3. Explain why you agree/disagree 4. Does the explanation seem reasonable? 5. Can you show how you represent $\frac{3}{4}$ if you are given paper strips? 6. Can you do it for $\frac{5}{8}$? 7. Try to work on paper of any other shapes to show $\frac{3}{4}$ and $\frac{5}{8}$. 9. Can you show how you represent $\frac{3}{4}$ if you are given a circle? 10. What do you notice on the shaded regions? 11. What do you observe about the shaded region and the value of the fractions? 12. Can you compare the value of fractions now? 13. What's the shape of the pizza? | |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>Scenario 3 Teacher guides the pupils to justify their answer and work further to compare the value of fractions without diagram/model</p> <p>Step 3 Closure Teacher encourages the pupils to draw conclusions about what they have learnt during the lesson.</p> | <p>14. Can you relate the pizza with the circle? 15. Who takes more?</p> <p>Scenario 3: Correct answer is given by the pupils</p> <p>1. How do you know that $\frac{3}{4}$ is greater than $\frac{5}{8}$? 2. Can you use your knowledge of fraction to show that $\frac{3}{4}$ is greater than $\frac{5}{8}$? 3. Do you have another way to show it? 4. How do you compare the value of fractions if you do not have the fraction model/manipulative tool?</p> <p>1. What have you found out today? 2. Can you share how you decide which fraction is greater in value? 3. Can you use your knowledge of equivalent fractions to help you? 4. Can you please summarise your thought? 5. Do you think that it will work for other pairs of fractions? 6. How do you make Zarina and Zali have equal share of pizza? (extension question)</p> | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|



Resource 5-2

Let's Plan It Template

| | | |
|---------------------|------------------------------------------|------------------------------------|
| YEAR/FORM | | |
| LEARNING AREA | | |
| TOPIC | | |
| CONTENT STANDARD | | |
| LEARNING STANDARD | | |
| LEARNING OBJECTIVES | | |
| REAL-LIFE PROBLEM | | |
| TIME | | |
| ACTIVITY | SUGGESTED TEACHER'S COMMUNICATION | LEARNING/TEACHING RESOURCES |
| | Any scenario | |

SLOT 6

LET'S COLLABORATE

| | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title | LET'S COLLABORATE |
| Synopsis | This slot requires CPs to work collaboratively to refine the selected real-life problem related to mathematics and amend the learning activity using English as the instructional language. |
| Learning Outcomes | At the end of this session CPs would be able to: <ol style="list-style-type: none"> 1. refine the real-life problem related to mathematics using English language in groups. 2. amend the learning activity to solve the problem in groups. 3. employ digital learning resources for the learning activity in groups. 4. pose effective questions and prepare constructive feedback for all possible scenarios in the plan in groups. |
| Duration | 2 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks and group discussions. |

SLOT 6

TITLE : LET'S COLLABORATE

| DURATION | CONTENT | ACTIVITY | RESOURCES |
|-----------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 2 hours | Refining and amending the selected learning activity | <ol style="list-style-type: none"> 1. CPs are required to refine the selected real-life problem and amend the learning activity using the Let's Collaborate Template (<i>Resource 6-1</i>) in groups. 2. CPs work collaboratively to: <ul style="list-style-type: none"> - explore, suggest and employ any relevant digital learning resources from Slot 2. - pose effective questions and prepare constructive feedback for ALL possible scenarios in the plan. | <u>Resource 6-1:</u> Let's Collaborate Template (Group) |



Resource 6-1

Let's Collaborate Template (Group)

| | | |
|---------------------|------------------------------------------|------------------------------------|
| YEAR/FORM | | |
| LEARNING AREA | | |
| TOPIC | | |
| CONTENT STANDARD | | |
| LEARNING STANDARD | | |
| LEARNING OBJECTIVES | | |
| REAL-LIFE PROBLEM | | |
| TIME | | |
| ACTIVITY | SUGGESTED TEACHER'S COMMUNICATION | LEARNING/TEACHING RESOURCES |
| | All scenarios | |

SLOT 7 & 8

LET'S DO IT

| | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title | LET'S DO IT |
| Synopsis | This slot requires CPs to conduct the learning activities in groups. CPs are required to give constructive feedback and peer review on the simulation. |
| Learning Outcome | At the end of this session CPs would be able to: <ol style="list-style-type: none"> 1. conduct mathematics learning activities planned using English as the instructional language. 2. give constructive feedback and peer review on the simulation. |
| Duration | 4 hours |
| Resources | Please refer to the resource column. |
| Delivery Mode | Hands-on activities, minds-on activities, online tasks, group discussion and presentation. |

SLOT 7 & 8

TITLE : LET'S DO IT

| DURATION | CONTENT | ACTIVITY | RESOURCES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|---------|---------|----------|---|---|--------|---------|--------|---|----------|---------|-------|----|---|---------|--------|--------|---|---------|-------|----------|-----|---|--------|--------|---------|---|-------|----------|---------|--------------------------------------------------|
| 1 hour 20 minutes | Conducting a learning activity based on the selected lesson plan | <p>1. The simulation is conducted as shown in Table 7-1:</p> <p style="text-align: center;">Table 7-1: Role of CPs in Each Session</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Session</th> <th>Room</th> <th>Teacher</th> <th>Student</th> <th>Reviewer</th> </tr> </thead> <tbody> <tr> <td rowspan="2">I</td> <td>A</td> <td>Circle</td> <td>Hexagon</td> <td>Square</td> </tr> <tr> <td>B</td> <td>Triangle</td> <td>Rhombus</td> <td>Heart</td> </tr> <tr> <td rowspan="2">II</td> <td>A</td> <td>Hexagon</td> <td>Square</td> <td>Circle</td> </tr> <tr> <td>B</td> <td>Rhombus</td> <td>Heart</td> <td>Triangle</td> </tr> <tr> <td rowspan="2">III</td> <td>A</td> <td>Square</td> <td>Circle</td> <td>Hexagon</td> </tr> <tr> <td>B</td> <td>Heart</td> <td>Triangle</td> <td>Rhombus</td> </tr> </tbody> </table> <p>2. The role play starts with Session I. In room A, CPs from Group Circle play the role of teachers while CPs from Group Hexagon play the role of students and CPs from Group Square play the role of reviewers. In room B, CPs from Group Triangle play the role of teachers while CPs from Group Rhombus play the role of students and CPs from Group Heart play the role of reviewers.</p> <p>3. Facilitators distribute the Peer Review Form (<i>Resource 7-1</i>) to all CPs.</p> <p>4. The reviewers are required to write their reviews on the Peer Review Form.</p> <p>5. Upon completing Session I, facilitators pose the Google Form on peer review under Session I (Reviewer: Square & Heart) in Google Classroom.</p> <p>6. The reviewers are required to complete the Google Form.</p> | Session | Room | Teacher | Student | Reviewer | I | A | Circle | Hexagon | Square | B | Triangle | Rhombus | Heart | II | A | Hexagon | Square | Circle | B | Rhombus | Heart | Triangle | III | A | Square | Circle | Hexagon | B | Heart | Triangle | Rhombus | <p><u>Resource 7-1:</u> Peer Review Form</p> |
| Session | Room | Teacher | Student | Reviewer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I | A | Circle | Hexagon | Square | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B | Triangle | Rhombus | Heart | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| II | A | Hexagon | Square | Circle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B | Rhombus | Heart | Triangle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| III | A | Square | Circle | Hexagon | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B | Heart | Triangle | Rhombus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| DURATION | CONTENT | ACTIVITY | RESOURCES |
|--------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 2 hours 40 minutes | | 7. Facilitators and CPs share the reviews and comments on Session I. 8. Steps 2 to 7 are repeated for Session II and III where CPs exchange their roles. | |



Resource 7-1

Peer Review Form

Teacher: Group _____

Student: Group _____

Reviewer: Group _____

No _____

Score: 1 = Need improvement

2 = Adequate

3 = Good

Part I: Real-life Problem

| | Criteria | Score | | | Examples in the Role Play | Comment and Suggestion |
|---|---------------------------------------------------------------------------|-------|---|---|---------------------------|------------------------|
| a | Relate the learning areas in mathematics DSKP to real-life scenarios. | 1 | 2 | 3 | | |
| b | The real-life problem formulated is well and clearly stated using English | 1 | 2 | 3 | | |

Part II: Digital Learning / Teaching Tools

| | Criteria | Score | | | Examples in the Role Play | Comment and Suggestion |
|---|---------------------------------------------------------------------------------------------------------|-------|---|---|---------------------------|------------------------|
| a | Integrate relevant digital learning/teaching tools in the learning activity. | 1 | 2 | 3 | | |
| b | The digital learning/teaching tools help in full conceptual understanding and/or rectify misconception. | 1 | 2 | 3 | | |



Part III: Questioning

| | Criteria | Score | | | Examples in the Role Play | Comment and Suggestion |
|---|----------------------------------------------------------------------------------------------------------|-------|---|---|---------------------------|------------------------|
| | | 1 | 2 | 3 | | |
| a | The questions are open ended. | 1 | 2 | 3 | | |
| b | The questions gather information on the students' understanding. | 1 | 2 | 3 | | |
| c | The questions promote students thinking by getting the students to make connections | 1 | 2 | 3 | | |
| d | The questions challenge students thinking by encouraging the students to conjecture, justify and reflect | 1 | 2 | 3 | | |

Part IV: Feedback

| | Criteria | Score | | | Examples in the Role Play | Comment and Suggestion |
|---|-----------------------------------------------------------------------|-------|---|---|---------------------------|------------------------|
| | | 1 | 2 | 3 | | |
| a | The feedback is appropriate, positive and motivating | 1 | 2 | 3 | | |
| b | The feedback gives direction implicitly on where and how to improve | 1 | 2 | 3 | | |
| c | The feedback supports the students to restructure their understanding | 1 | 2 | 3 | | |

Entrance and Exit Survey

| No | Details | QR Code |
|----|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1 | DLP2.0 MATHEMATICS COURSE Entrance Survey https://forms.gle/YFESxi3VMSreB5786 |  |
| 2 | DLP2.0 MATHEMATICS COURSE Exit Survey https://forms.gle/uTsN8ux25kBCTSU18 |  |

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