



# **Eliciting Voices of Students with Diverse Learning Needs**

**A Resource Guide Featuring SLS** 



#### 1. Introduction

### **About Us**

Hi! We are educators from the Educational Technology Division (ETD), Information Technology Division (ITD), and Psychological Services Branch (PSB).

We are part of the Classroom of the Future (CotF) project, a multi-divisional effort that leverages design thinking and other human-centric methodologies to enhance the learning experience for students and teachers. We seek to:

- identify challenges, frame and prioritise opportunities in the technology-enabled classroom;
- generate, prototype and test potential digital or non-digital solutions for the delivery of effective teaching and learning experiences; and
- develop capabilities within MOE in the design, deployment and scaling of technologies and solutions for teaching and learning.



#### 1. Introduction

### **About This Resource Guide**

Do you have these students in your class?

- The non-verbal students who struggle to express themselves.
- The anxious students who have trouble understanding text.
- The fearful students who do not want to make mistakes in front of the class.
- The quiet students who have difficulties with reading and writing.

We have something for you! This resource guide aims to shine a spotlight on eliciting students' voices in classes with diverse learning needs.

With the use of these SLS features, we hope to help you support your students with diverse learning needs (e.g., literacy difficulties, challenges in expression), enable them to participate more actively in class, and build their self-confidence.







### 2. Eliciting Voices of Students with Diverse Learning Needs using SLS Features

# **3 Key Considerations**

To elicit students' voices in classes with diverse learning needs, we propose 3 key considerations. For each of these considerations, we have provided examples of relevant SLS features that may be helpful in your lesson design.

### 1. Perception

Support students in gaining access to the text (e.g., seeing, hearing)

#### Examples of SLS features:

- Font size
- Audio support

### 2. Comprehension

Support students in interpreting the text

### Examples of SLS features:

- Supporting images to accompany text
- Tooltips & Hints

### 3. Expression

Support students in expressing their response using appropriate scaffolds (e.g., multimodal responses)

#### Examples of SLS features:

- Component types
- Pre-populated Student Answer



Support students in gaining access to the text (e.g., seeing, hearing)



# **Font Size**

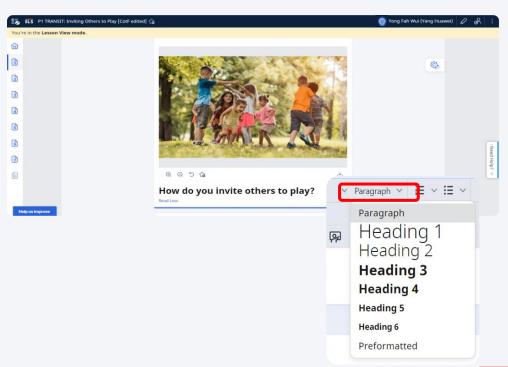
A small font size may be difficult to read, especially for students with limited literacy skills. For primary school students, you may consider using a larger or a more readable font size to bring the students' attention to the text.



### **Font Size**

You may use a range of font sizes available on SLS under the **Paragraph** tab. Choose a larger font for better readability.

☆SLS is also mobileresponsive, allowing students to zoom in on their mobile devices.





# **Audio Support**

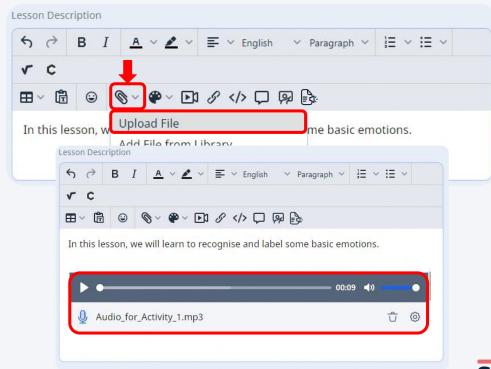
Students with reading difficulties may find it challenging to read a whole chunk of text. To support them, consider using an audio recording of the instructions/ questions and text given or using the Text-to-Speech function (currently available for all Mother Tongue Languages). This could help reduce the cognitive load of reading and comprehending the text at the same time.



# **Audio Support - Supplementary Audio File**

Consider uploading an audio recording of the text as an audio media file\* to support your students who have reading difficulties.

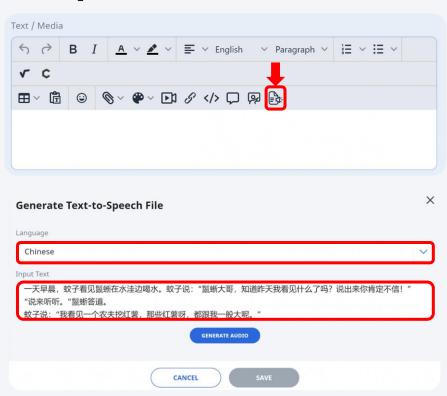
\*Use your phone/ computer's Sound Recorder app to record an audio file.





# **Audio Support - Text-to-Speech Function**

- 1. To use the **Text-to- Speech (TTS)** function
  (available to all Mother
  Tongue Language
  teachers), select the **TTS**icon.
- 2. Select the language and add text to generate the audio file.





## **Audio Support - Text-to-Speech Function**

- 3. When previewing the file, you can:
  - play/pause the audio
  - toggle between sentences using the back ( ) and forward ( ) arrows
  - click on specific sentences to play that sentence
- 4. Spotted an error? Feel free to edit the text!



☆The sentence being read at the moment will be highlighted in yellow.



# Page-Break

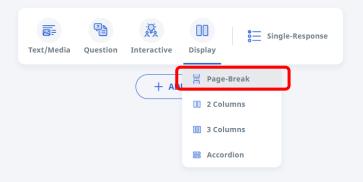
Students may find it over-whelming when there are multiple components within one activity. Teachers can use Page-Break to split an activity into smaller groups of components. This allows content to be broken down into bite-size pages, helping students to manage the demand of the activity.

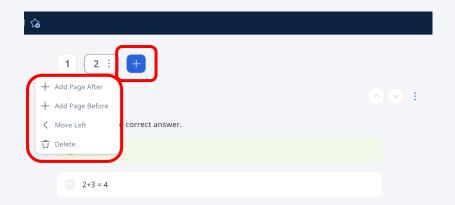


## **Page-Break**

- To add a Page-Break, select the Page-break option from the Display dropdown menu.
- 2. After adding the first

  Page-Break, you can add subsequent page-breaks using the plus (+) button beside the page number.

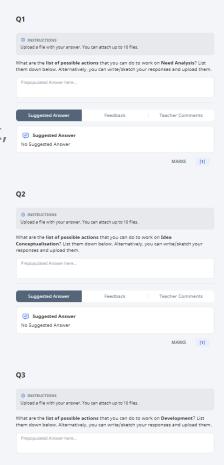






# **Page-Break**

Before using Page-Break, activities with many questions can look very long, requiring students to scroll through.

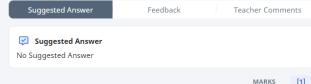


With Page-Break, each question can be placed on one page to help students pace themselves.



Q2

~-		
① INSTRUCTIONS Upload a file with your answer. You can attach up to 10 files.		
What are the <b>list of possible actions</b> that you can do to work on <b>Idea Conceptualisation</b> ? List them down below. Alternatively, you can write/sketch your responses and upload them.		
Prepopulated Answer here		
Suggested Answer	Feedback	Teacher Comments





# Subgroups

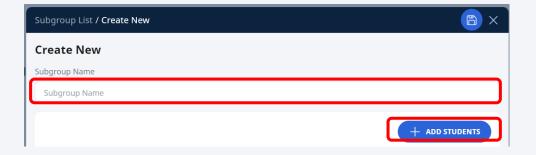
In classes with various groups of students that have different learning needs, teachers can split a SLS Class Group into subgroups. Teachers can then assign different activities to each subgroup according to the level of scaffolding needed. This can support differentiated learning and help students keep pace with the rest of the class.



# Subgroups

- To set up a subgroup, select the **Admin tab** from a class group, followed by **+New Subgroup**
- Input a Subgroup
   Name and select +Add
   Students to choose
   the subgroup
   members

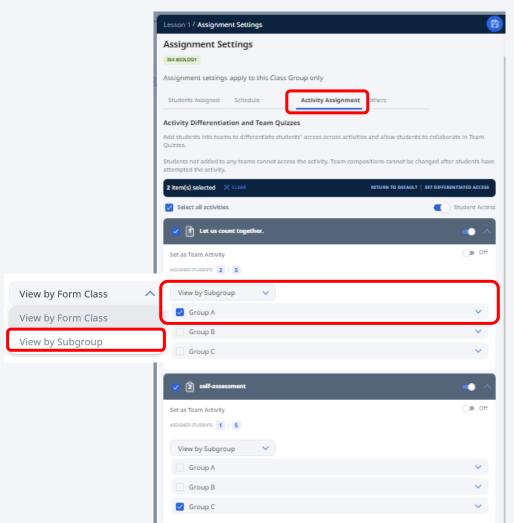






# Subgroups

- To assign activities to a subgroup, locate
   Assignment Settings and select the Activity
   Assignment tab.
- 4. For each activity, select View by Subgroup and choose the Subgroup that you want to assign the activity to.





Support students in interpreting the text



# **Tooltip**

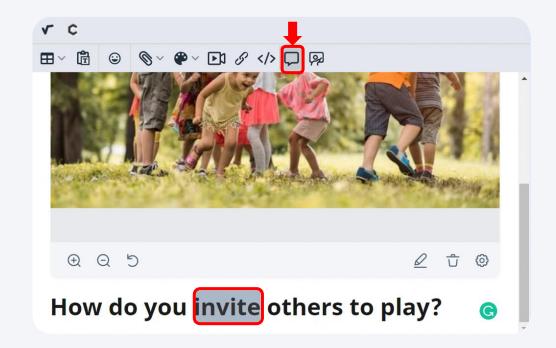
If there are words or questions that you feel the students may have difficulty comprehending, you may <u>provide them with simple definitions</u> to support them in their understanding of the text.

☆ Using age-appropriate language makes comprehension easier!



# **Tooltip**

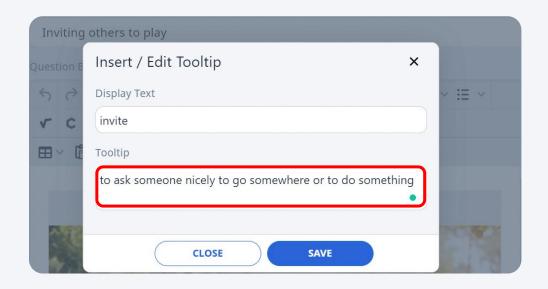
1. Highlight a difficult word and click on the **Tooltip** icon.





# **Tooltip**

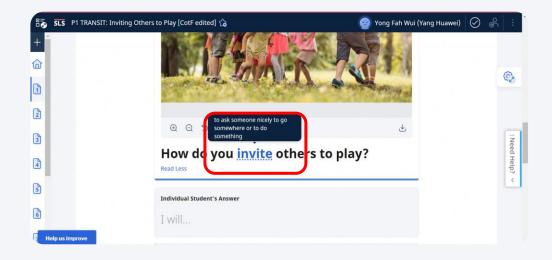
2. Type the meaning of the word under **Tooltip**.





# **Tooltip**

3. The word will be highlighted in blue and the meaning of the word will appear when students mouseover or tap on the word.

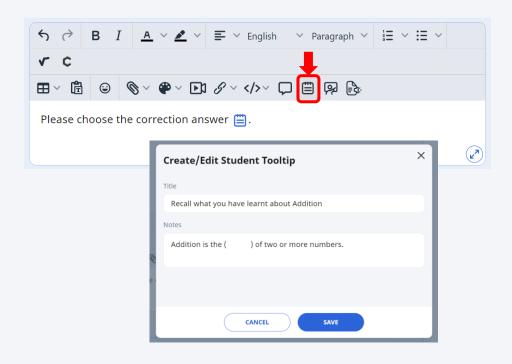




# **Student Tooltip**

4. Teachers may also insert a **Student Tooltip** to allow students to insert annotations that students can refer to at a later date.

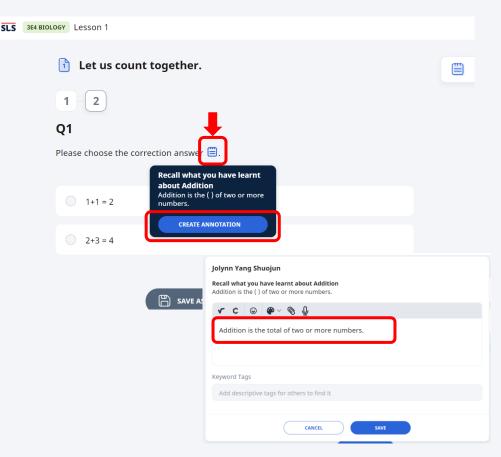
This can be in the form of guiding questions, or reminders to support students in interpreting the question.





# **Student Tooltip**

- 5. Once the teacher assigns the lesson, students are able to create annotations by clicking on the **Student Tooltip** icon.
- 6. Students will be able to see their own annotations when they log in again.





# **E-Dictionary**

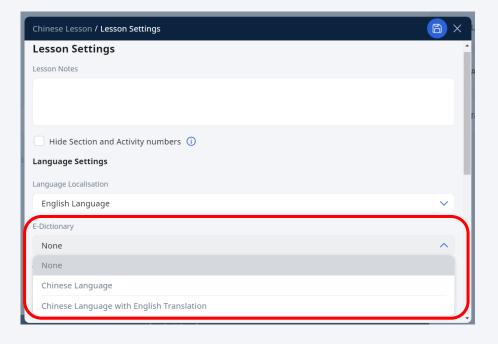
For Chinese Language teachers, you can enable the E-dictionary feature within your lessons to allow students to use the in-built dictionary in SLS to find out the definition or translate the words.



## **E-Dictionary**

Chinese teachers may turn on the **E-Dictionary** feature when crafting a lesson by clicking on the icon next to **Lesson**







## **E-Dictionary**

- 2. Students are now able to access the E-Dictionary by highlighting the Chinese characters and clicking on the icon.
- 3. Students are also able to add their searches to notes for future reference.

起床
qǐ chuáng

中文 English

1. 睡醒后下床(多指早晨)。
・ e.g 他习惯早起,每天总是天刚亮就~。



# Supporting Images/Emoticons to Accompany Texts

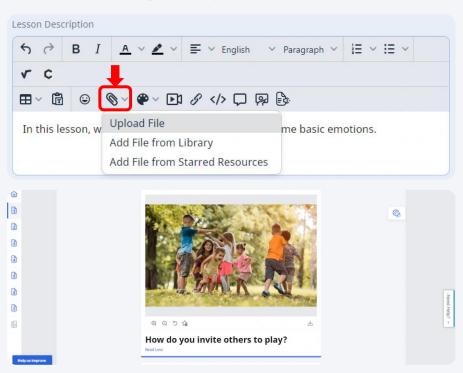
You may include <u>supporting images/emoticons to help students</u> <u>interpret the text</u>. Using pictures could also facilitate students' reading comprehension.

☆ Using pictures may help to capture students' attention, allowing them to be more engaged in their learning.



# **Supporting Images to Accompany Texts**

Add supporting images by uploading the image file.





### **Example of Supporting Images - For Mathematics**

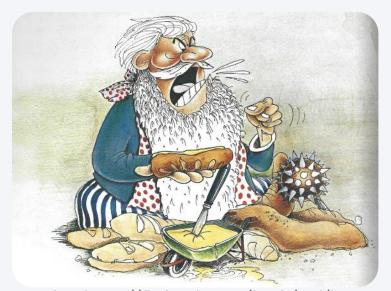


$$1. 2 + 3 =$$



### **Example of Supporting Images - For English**

1. Why do you think the giant was angry?



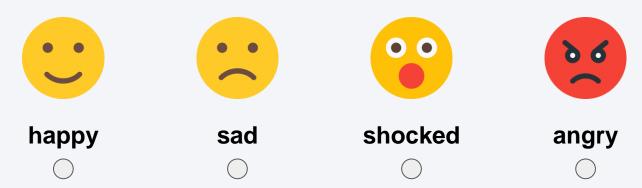
Credits: https://fliphtml5.com/herfc/qttl/basic



# Example of Supporting Images For Self-Management Skill/Form Teacher Guidance Period

1. How do you feel after listening to the story?

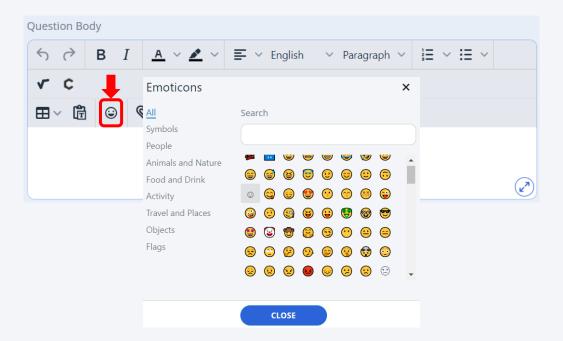
I felt
.





## **Supporting Emoticons to Accompany Texts**

1. Add supporting emoticons by clicking on the emoticon icon.





# Hint

Students may experience difficulties understanding the question prompt. <u>Giving hints</u> may provide cognitive scaffolds to guide students in their thought processes.



#### 2B. Comprehension

### Hint

Type in the Hint under the question body to scaffold students' comprehension and response.

(Applicable for Multiple-Choice Questions)





#### 2B. Comprehension

# 2-Column Display

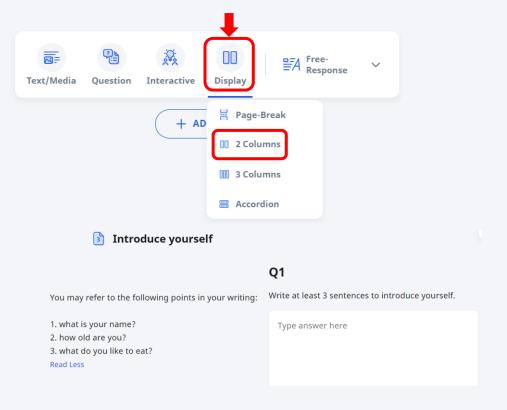
For lessons that have a lot of content, teachers may make use of the **2-Column Display** feature to shorten the length of an activity. This can help reduce the cognitive load on students.



#### 2B. Comprehension

# 2-Column Display

1. Add a **2-column** display by clicking on **Display** when adding new components to a lesson.





Support students in expressing their response using appropriate scaffolds



# **Component Types**

SLS <u>offers a variety of Component Types</u> which you may use to elicit quick responses from your students. Try choosing different Component Types to suit the purpose of the questions asked as the choice of Component Types could support students' diverse learning needs.



# **Component Types in SLS**

Component Type		How diverse learning needs can be supported
Interactive Thinking Tool (ITT)	-jÖ-	Enables students to share their responses using their preferred mode (e.g., drawing, audio recording, text, etc.) with teachers and classmates, and to comment on peers' responses. Responses can be viewed by everyone in class and this provides opportunities for students to learn from one another.
Discussion		Enables students to share their responses using their preferred mode (e.g., drawing, audio recording, text, etc.) with teachers and classmates, and to comment on peers' responses. Responses can be viewed by everyone in class and this provides opportunities for students to learn from one another.



# **Component Types in SLS**

Component Type	How diverse learning needs can be supported
Poll	Supports students who have difficulties typing out an answer; the students can select one or more options from a list provided when the question does not require a correct answer.
Multiple-Choice 📜	Supports students who have difficulties typing out an answer; the students can select one of the options from a list provided when the question requires a correct answer.
Free-Response	Enables students to share their responses with teachers using their preferred mode (e.g., drawing, audio recording, text, etc.).
Audio-Response 👲	Supports students who may have difficulties typing out an answer; the students can record their answers verbally.



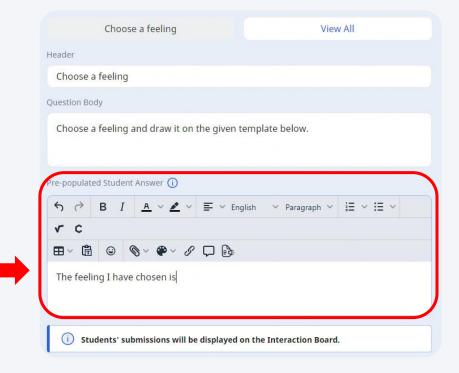
# Pre-populated Student Answer

You may <u>use the Pre-populated Student Answer feature in SLS</u> to support students who may have difficulty in crafting their response, which may be through words or drawing.



# **Pre-populated Student Answer (Text)**

Type the sentence starter in the 'Pre-populated Student Answer' text box and it will automatically be shown in your students' assignment.





# Some Examples of Useful Sentence Starters for Answering Questions

- I think this way because . . .
- I think/believe/imagine that . . .
- I am right because. . .
- To add on . . .
- I was taught by our teacher to . . .
- For example . . .
- My answer is . . .
- In my opinion . . .

- In my opinion . . .
- It seems to me that . . .
- I know because . . .
- It said in the story . . .
- This happened because . . .
- The reason for this is . . .
- I know this is true because . .
- [For Mathematics] I did it this way because . . .



# Some Examples of Useful Sentence Starters for Commenting on Others' Responses

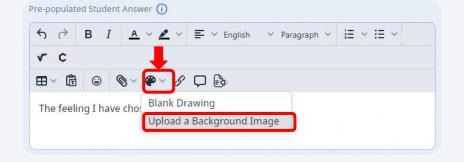
- This makes sense because . . .
- Another way to look at this is . . .
- I agree/disagree with you because . . .
- I'd like to add that . . .
- To add on what \_\_\_\_\_ said, . . .
- After listening to \_\_\_\_\_, I think the answer should be . . .
- After seeing \_\_\_\_\_, I want to change my thinking to . . .
- I thought \_\_\_\_\_, but now I think . . .
- I think your answer is correct because . . .
- That's an interesting idea, and I also think . . .
- [For Mathematics] My way is different from yours because I . . .
- [For Mathematics] I used the same way, but I want to add . . .
- [For Mathematics] I can prove what \_\_\_\_\_ is saying is correct because . . .



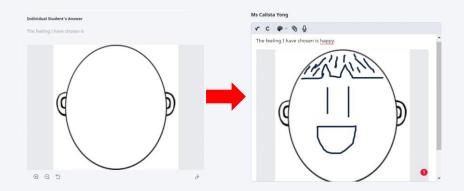
# **Pre-populated Student Answer (Drawing)**

☆ Drawing function could be useful to support students who have challenges expressing themselves through words.

1. To add an image, click on the **Drawing** icon and upload a Background Image.



2. Upon uploading an image, your students will be able to draw on the image that you have uploaded.







#### 3. Sample SLS CG Lessons

## **Examples - Lesson Plans in SLS CG**

To guide you in creating your own SLS lessons catering to students with diverse learning needs, here are some lesson examples from the SLS Community Gallery (CG). In the following section, we have highlighted how these lessons incorporate the features shared in this resource guide.

Two of the examples include Self-Management Skills lessons that we have codesigned with our partner teachers from two primary schools using some of the recommended SLS features in this resource guide for their students with diverse learning needs in the Transition Support for Integration programme (TRANSIT) classes.



# TRANSIT Lesson 1: Asking for Permission

Co-designed by: CotF, PSB, St Anthony's Primary School and North Vista Primary School

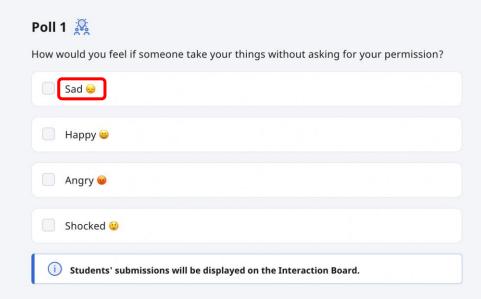
https://vle.learning.moe.edu.sg/mrv/communitygallery/lesson/view/48ecf4c2-ac17-4386-a69d-368b3f6ce570/cover



#### 3. Sample SLS CG Lessons

# **Use of Poll & Supporting Image in SLS**

- Use the Poll Component type so that students with literacy difficulties could easily respond without typing.
- Use Emoticons as supporting images to help students who have difficulties in reading or text comprehension.





#### 3. Sample SLS CG Lessons

### **Use of Hints in SLS**

Include a Hint to guide students in deciding which option was the most suitable.





# TRANSIT Lesson 2: Feelings

Co-designed by: CotF and Sembawang Primary School

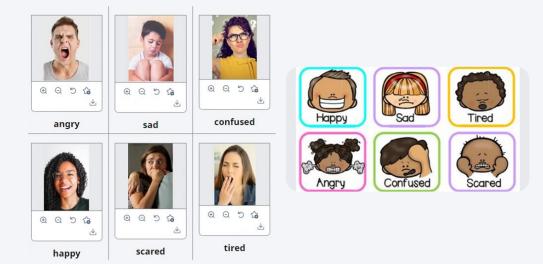
https://vle.learning.moe.edu.sg/mrv/community-gallery/lesson/view/45526087-9fe1-4f6b-887e-d303f15f53a0/cover



#### 3. Sample SLS CG Lessons

# **Use of Poll & Supporting Image in SLS**

Use a variety of supporting images depicting feelings (e.g., realistic, illustrations) to help students recognise the feelings better.

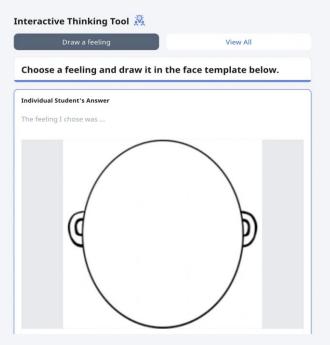




#### 3. Sample SLS CG Lessons

# Use SLS ITT & Pre-populated Student Answer (Drawing) in SLS

- Use the SLS ITT to help students see their classmates' responses, which were used later to facilitate a discussion.
- Pre-populate a template to direct students to draw the facial expression of the feeling that they had chosen.





# P1 Learning Support Programme (LSP) Reading And Spelling (Words with digraph *th*)

Lesson Created by: Lim Mei Yin Diane from Bedok Green Primary School

https://vle.learning.moe.edu.sg/mrv/community-gallery/lesson/view/e01704ab-278a-482f-9ff3-da7e333e7895/cover



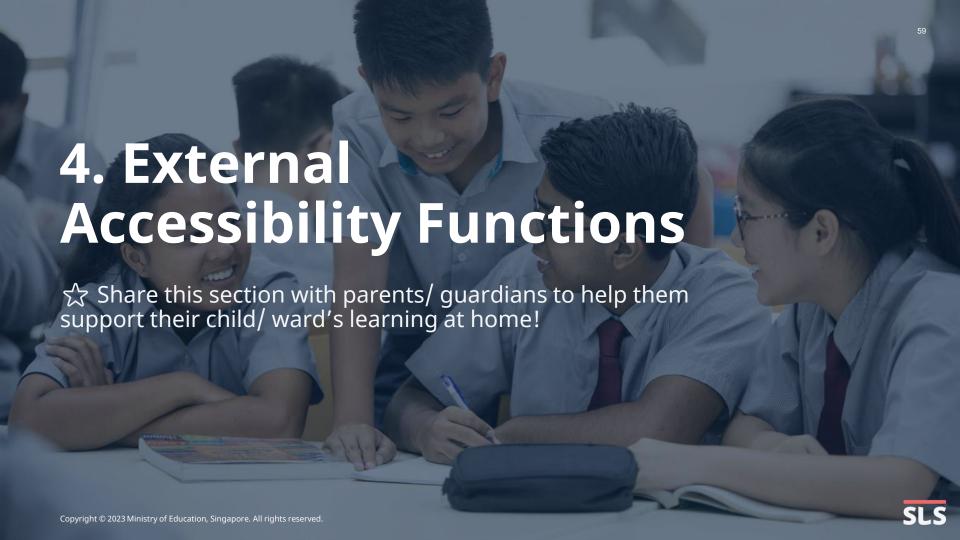
#### 3. Sample SLS CG Lessons

### **Use of Large Font Size and Audio Support in SLS**

In addition to using a large font size, upload a recording of the instructions given to assist students with reading difficulties.







# **External Accessibility Functions**

In this section, we have included some external accessibility functions that may be useful to you as you explore designing SLS lessons to elicit voices of students with diverse learning needs:

- Apple Text-to-Speech and Speech-to-Text functions
- Google Chrome Text-to-Speech extension
- Windows Text-to-Speech function



# Google Chrome/ Apple Accessibility Functions

For students with reading difficulties, using the Text-to-Speech function on devices and browser extensions can help reduce the cognitive load of reading and text comprehension.

The Speech-to-Text function\* on Windows and Apple devices may be useful to support students with literacy difficulties (especially with spelling) when responding to question prompts.

\*Note: Transcription may not be entirely accurate.



## **Google Chrome Accessibility Functions**

**Text-to-Speech** 

 To start, search for the Text-to-Speech extension on Google Chrome.





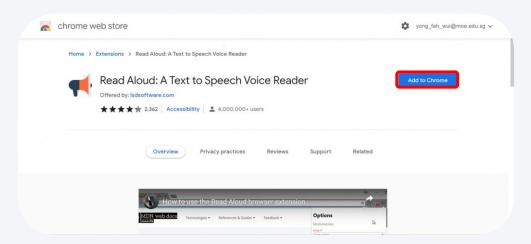
### **Google Chrome Accessibility Functions**

## **Text-to-Speech**

2. Then, add the **Text-to- Speech** extension to
Google Chrome.

#### ☆ Some examples:

- Pixie
- Helperbird
- Read Aloud

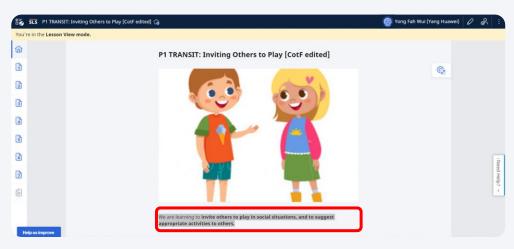




# **Google Chrome Accessibility Functions**

## **Text-to-Speech**

3. In SLS, highlight the text to be read.





# **Google Chrome Accessibility Functions**

## **Text-to-Speech**

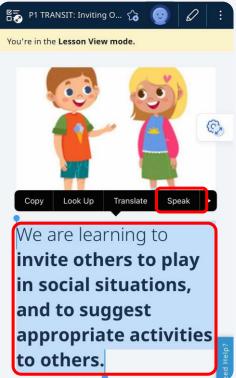
4. Next, right-click and select **Read aloud** selected text.





# Apple (iPad) Accessibility Functions Text-to-Speech

**Spoken Content** - highlight specific text to be read, double-tap the highlighted text, then click on **Speak**.

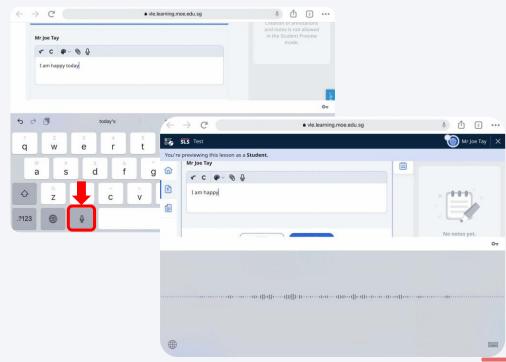




# **Apple (iPad) Accessibility Functions**

**Speech-to-Text** 

**Transcription (Speech-to-Text)** - select the **Dictation** function on the iPad.

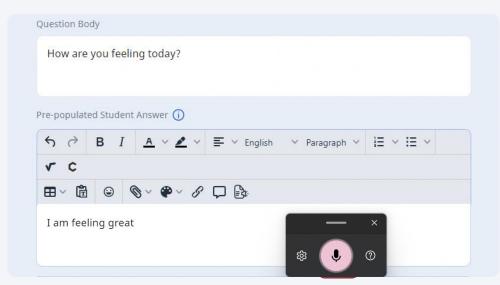


# Windows Accessibility Functions

## Speech-to-Text

#### **Voice Typing (Speech-to-Text)**

- 1. Select the space where you would like to input your text.
- 2. Press Windows logo key + H.
- 3. Click on the **Microphone** icon and start speaking.
- 4. To stop the voice typing, click on the **Microphone** icon again.





# Other Google Chrome Accessibility Functions

https://www.google.com/accessibility/products-features/

Accessibility Function	Examples
Vision	<ul><li>High Contrast Chrome Extension</li><li>Custom Colour Controls</li></ul>
Hearing	<ul><li>Live Caption</li><li>Image Descriptions</li></ul>
Cognitive	Simplified Views



# Other Apple (iPad) Accessibility Functions

https://www.apple.com/sg/accessibility/

Accessibility Function	Examples	Link
Vision	<ul><li>VoiceOver</li><li>Magnifier</li><li>Colour Filter</li></ul>	https://www.apple.com/sg/accessibility/vision/
Mobility	<ul><li>Voice Control</li><li>Head Tracking</li><li>Assistive Touch</li></ul>	https://www.apple.com/sg/accessibility/mobility/
Hearing	<ul><li>Conversation Boost</li><li>Sound Recognition</li><li>Sensory Alerts</li></ul>	https://www.apple.com/sg/accessibility/hearing/
Cognitive	<ul><li>Safari Reader</li><li>Guided Access</li></ul>	https://www.apple.com/sg/accessibility/cognitive/



# **Other Windows Accessibility Functions**

https://www.microsoft.com/en-us/accessibility/windows

Accessibility Function	Examples
Vision	<ul> <li>Colour Contrast Themes</li> <li>Magnifier</li> <li>Colour Filters</li> <li>Narrator</li> </ul>
Hearing	<ul><li>Windows Caption</li><li>MonoAudio</li></ul>
Mobility	<ul><li>Eye Control</li><li>Voice Typing</li></ul>
Neurodiversity and learning	<ul><li>Immersive Reader</li><li>Focus Assist</li></ul>



# In Appreciation

Our team would like to express our sincere gratitude to the colleagues who have joined us on this journey:

- 1. Lim Mei Poh Cynthia (Sembawang Primary School)
- 2. Nuremiliyana Suhaidi (Sembawang Primary School)
- 3. Mardiana Radja Abdul Rani Atjeh (St Anthony's Primary School)
- 4. Sim Hwee Daphne (St Anthony's Primary School)

We would also like to thank YOU for reading the guide to the very end (which is a big encouragement to us!) and for being a champion in eliciting the voices of students with diverse learning needs.



# **Thank You!**

Explore our edtech innovations and share your thoughts with us at <a href="https://for.edu.sg/cotf">https://for.edu.sg/cotf</a>



