Microsoft

TEALS
Supporting the CS classroom: Part II

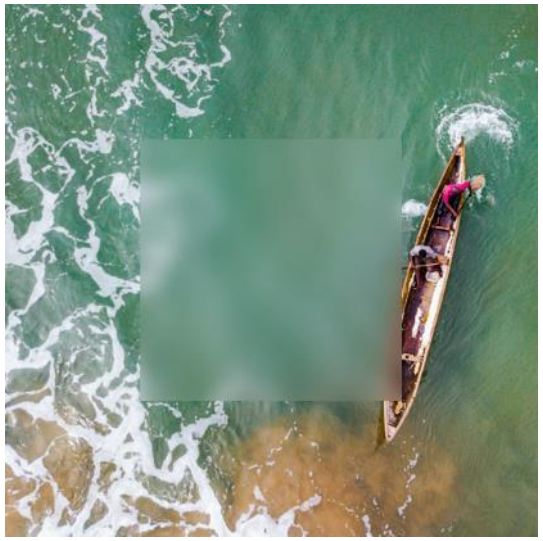
Do Now

- Download updated asset sheet

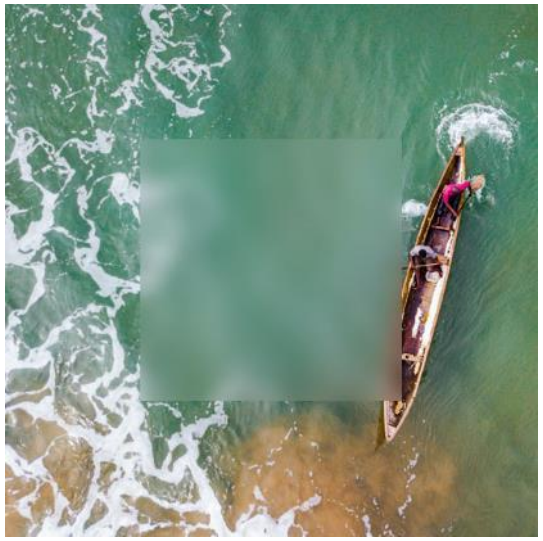
https://aka.ms/SummerTrainingMakeupAssets

- In Chat introduce yourself:
  name, school, and curriculum
- Respond to at least one other person not or
  teaching team.

Meet the TEALS team



Presenter name
Title
Training role



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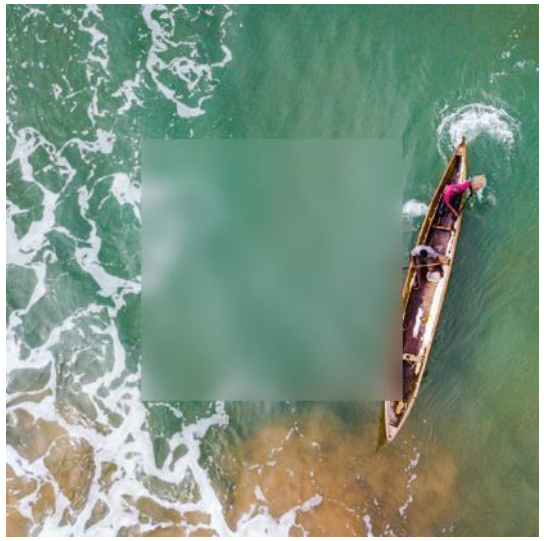

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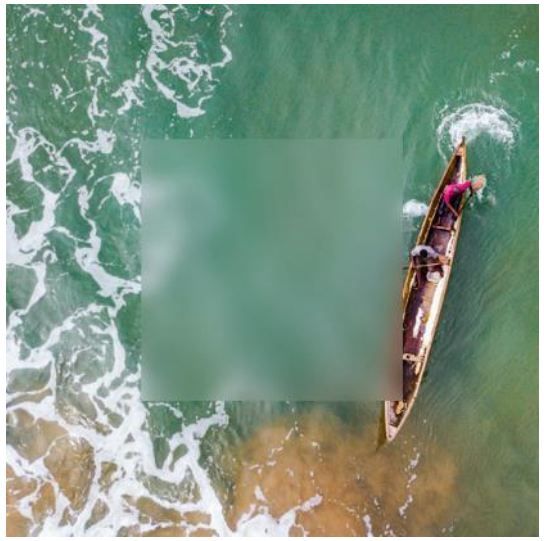


Presenter name
Title
Training role

Agenda

Unit
Welcome
School norms
Chunking
Instruction: Active learning
Formative assessment
Practice: Lab management
Wrap up

Objectives

After this training, you will be able to…

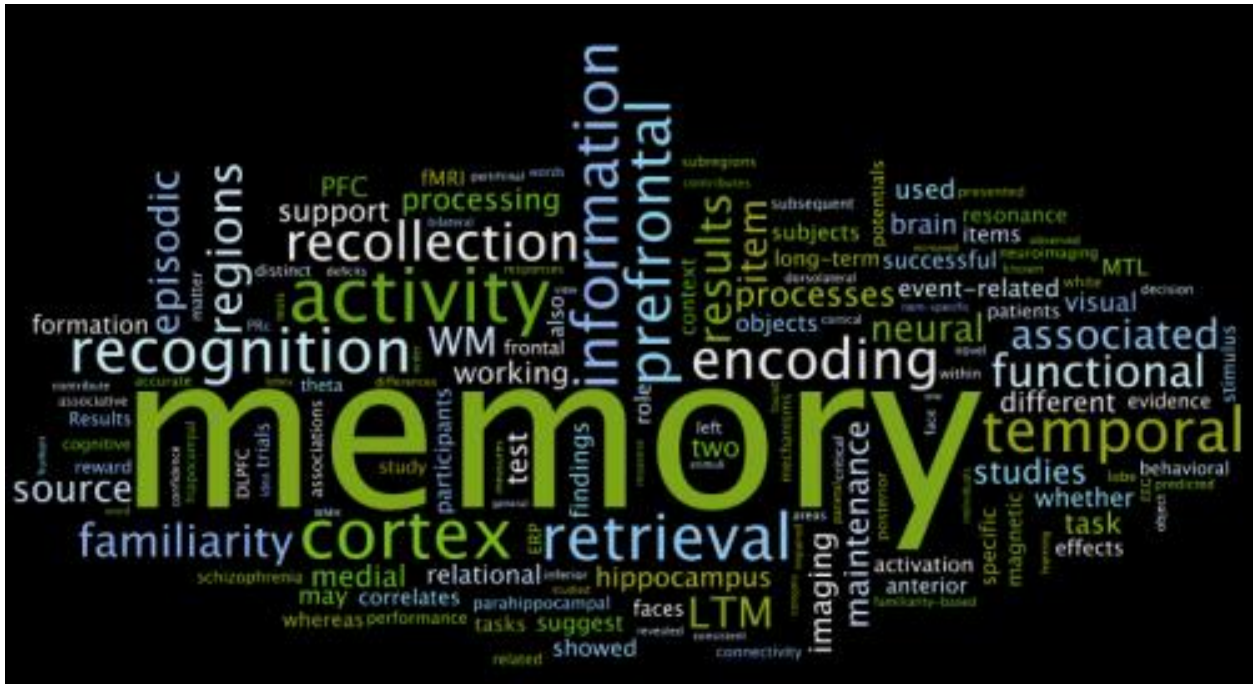
- State the importance of adhering to school norms.
- Identify methods to help students remain engaged during a lesson.
- Select ways to check for students understanding throughout a lesson.
- You will understand how bias can impact learning and how to combat it.
- Describe best practices for managing lab time in the CS classroom.

Chunking

Memory game

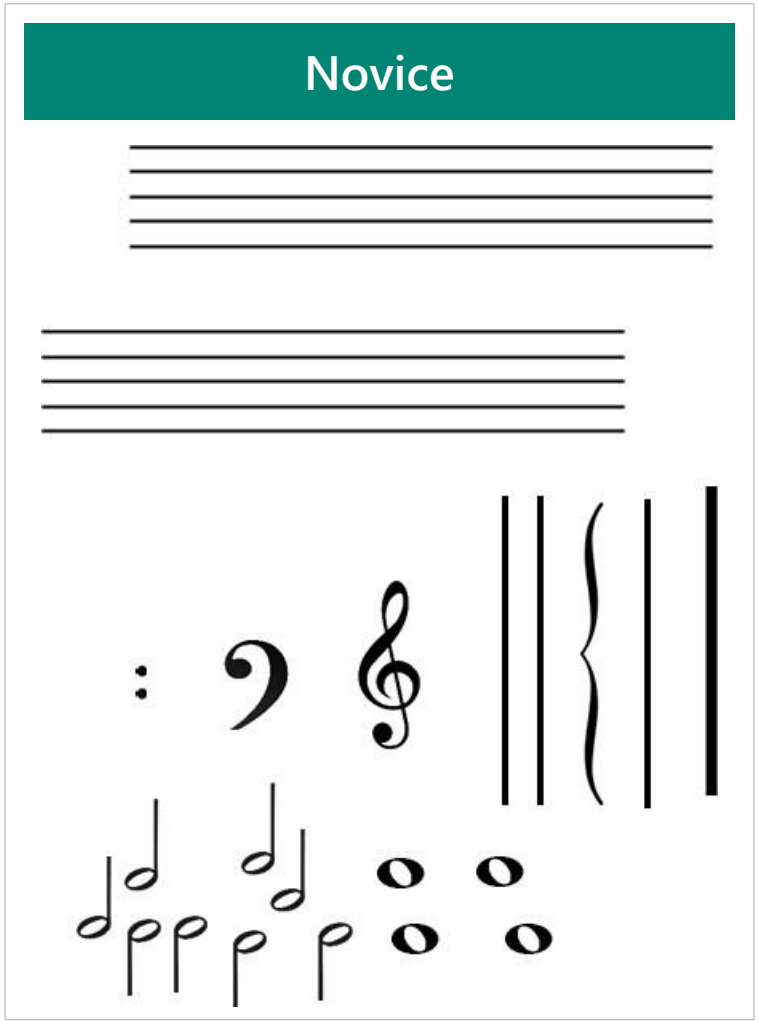
Get ready

1. 10 seconds to look at a picture.
2. Then, 1 minute to reproduce the picture in your “notebook”.
3. Afterwards, enter in the chat:
   - Number 1 – I aced it
   - Number 2 – I did OK
   - Number 3 – I need work



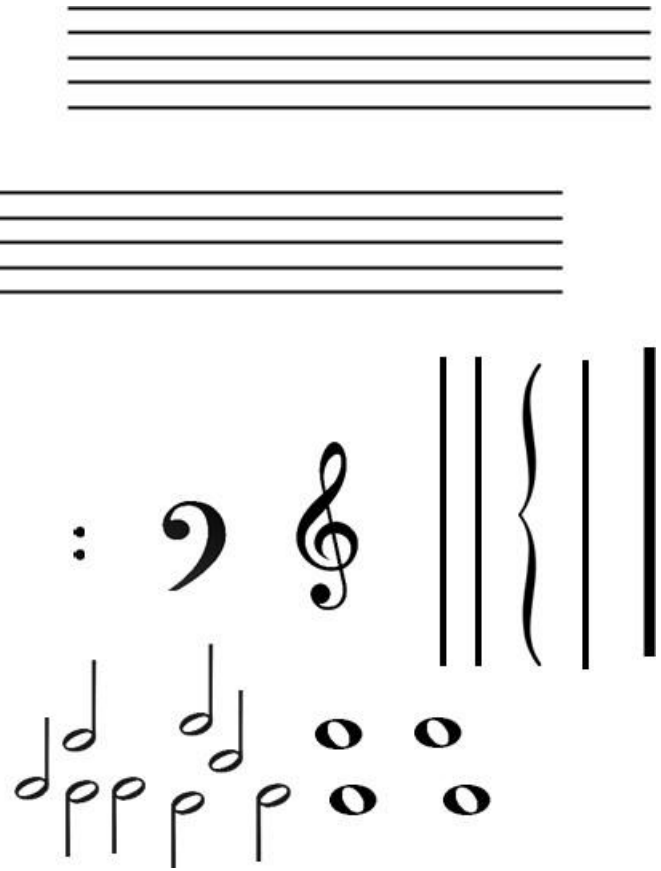
Chunking exercise

Chunking novice

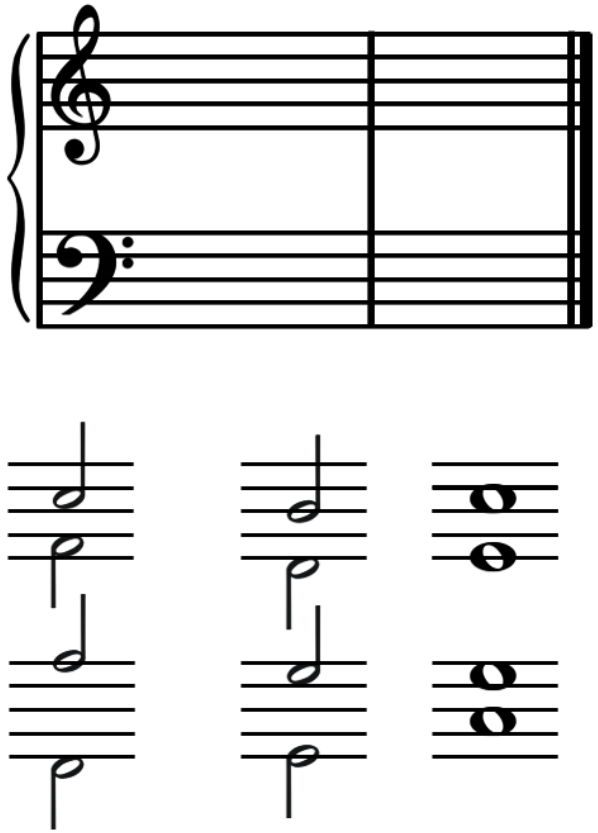


Chunking intermediate

Novice

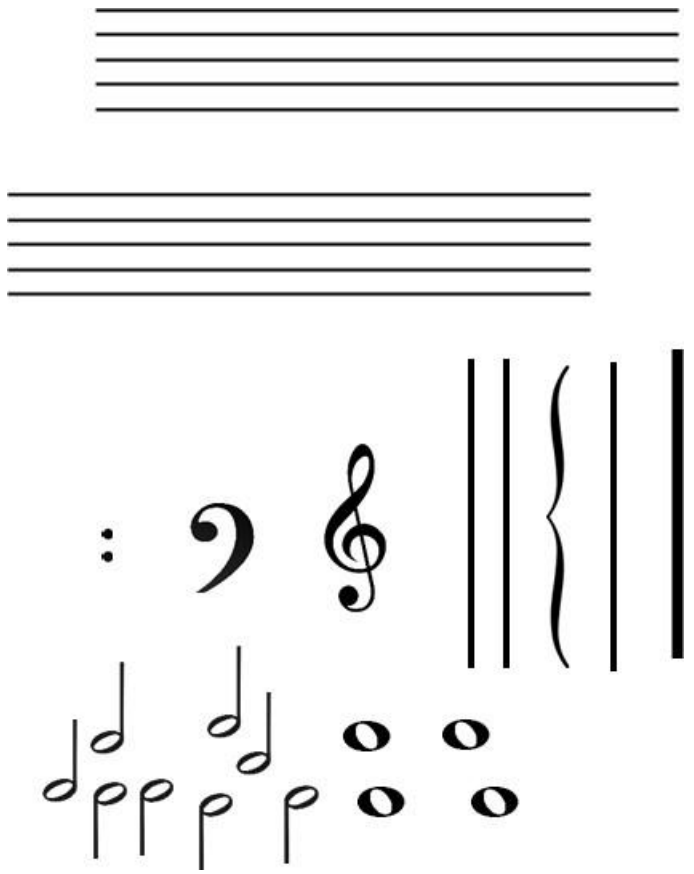


Intermediate

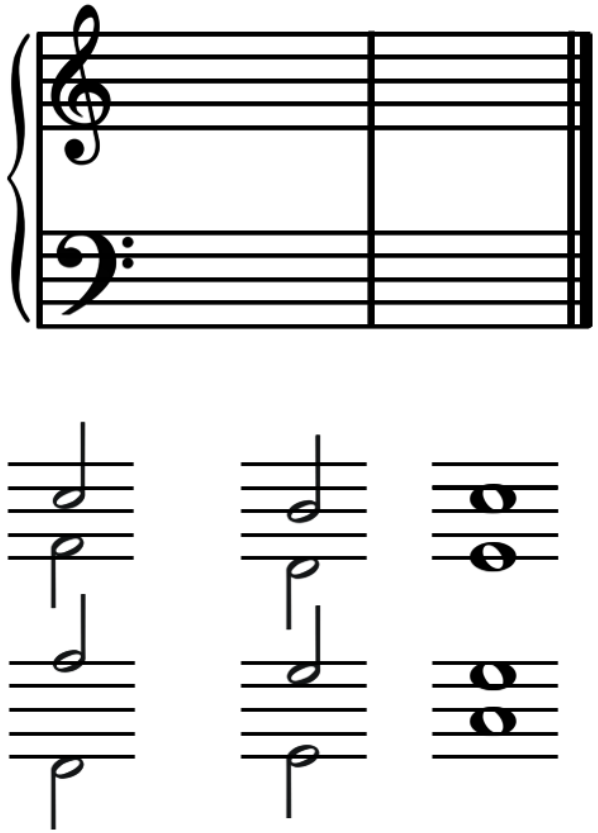


Chunking expert

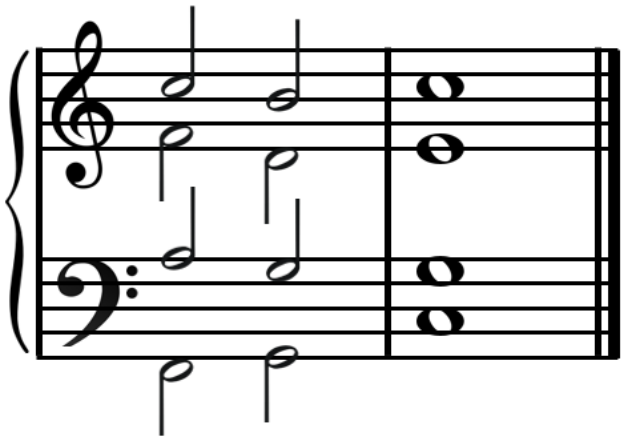
Novice



Intermediate



Expert

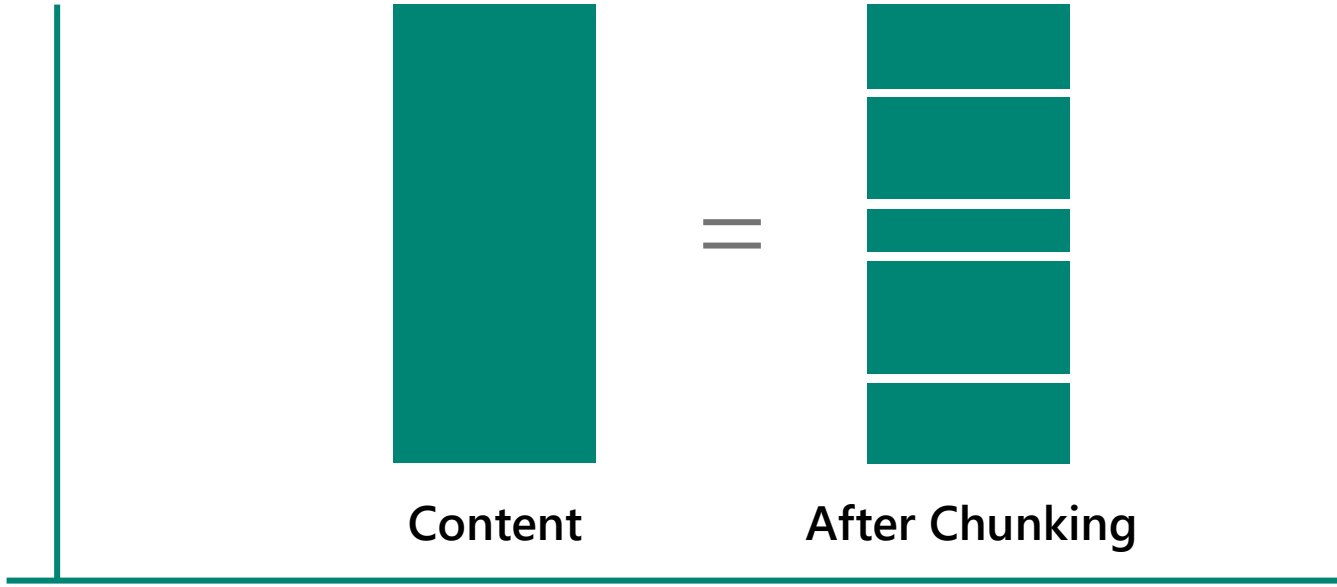


Which level was your drawing: novice, intermediate or expert? Share in the chat.

Chunking

Brains use pattern-matching to chop information into chunks.

Experts' chunks tend to be bigger/more abstracted than beginners.



Chunking example

```
public class Count1000 {
        public static void main (String[] args) {
                for (int i = 1; i <1000; i++) {
                        System.out.println(i);
                }
        }
}
```

Seasoned programmer: Single concept or idea.
Novice programmer: Combination of a for loop with a print line statement and a variable.
Beginning student: might see each of those components as multiple sub-components as well.

Overcoming Stereotypes video

Unconscious bias: Enhance objectivity video

Remember expert bias

"Perceiving something as easier or simpler than it is because one's own experience or knowledge of the subject."

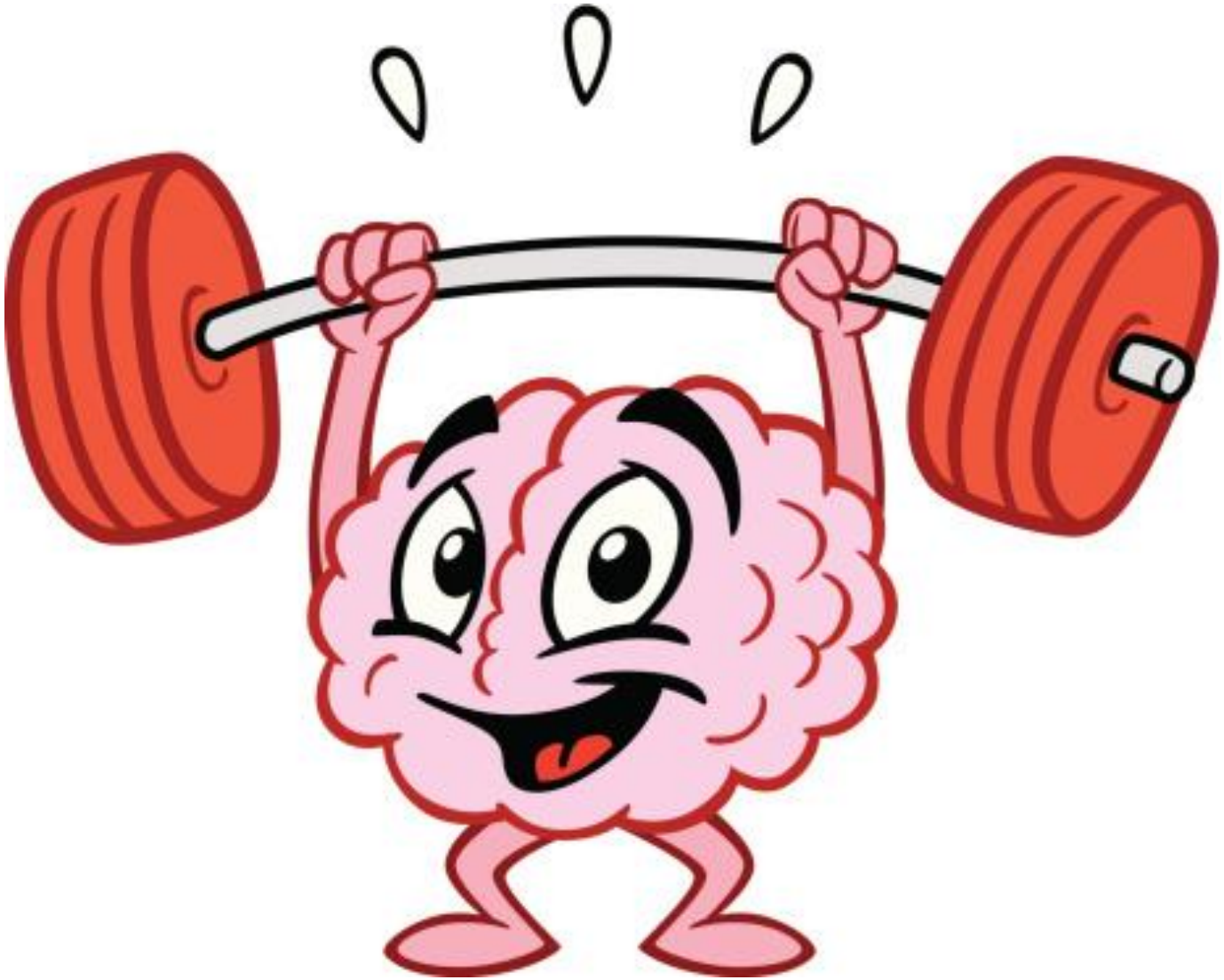
Examples

- → Lack of chunking
- → Jargon
- → Unrealistic time expectations
- → Giving few examples

Volunteers

Be mindful and mitigate expert bias.

Instruction: Active learning



How learning works

Nope.

Yep.

"Knowledge is a consequence of experience" (Piaget, 1973)

Instructional techniques

Can you think of one instructional technique you have used or have seen used?

Put your answer in the chat

Sample of instructional techniques

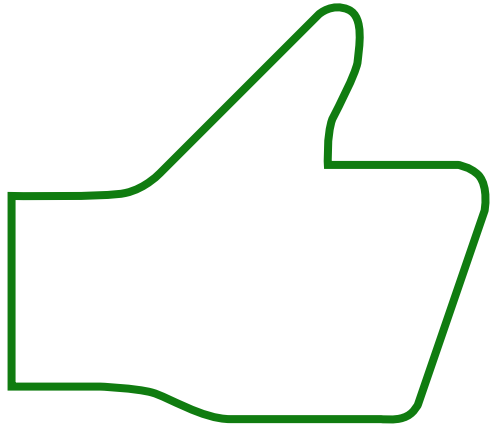
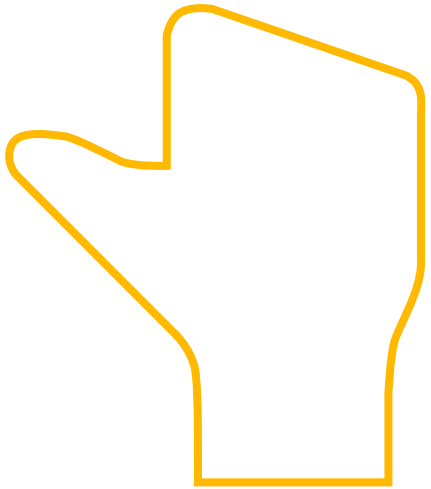
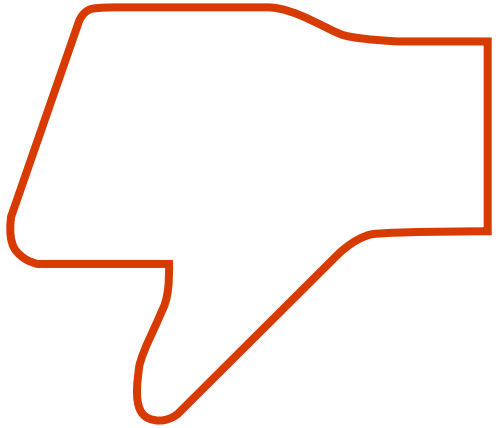
Mix up lecture with varied instructional techniques.

Discussion	Research	Journaling/ Writing	Exploration/ Discovery	Demo
Student Presentation	Peer Instruction	Walkthrough	Small Group Work	Roleplay

Anatomy of a lesson

Warmup Hook Instruction Practice Assessment

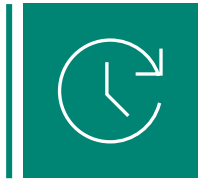
Formative assessment introduction

I get it! I understand everything!	I kinda get it! I need a little help.	I don't get it! I need a lot of help.
		
I can tell you what I learned.	I still have a few questions.	I still have a lot of questions.

Formative assessment

[fôrmədiv əˈsesmənt] noun

Anything that gives you information about what students are learning and/or how they're doing



Should occur frequently

Multiple times per day/lesson

Aggregate and individual results

Don't make assumptions!

Assess … then react!

- *Reteach, work through examples, pull aside a smaller group, if needed, etc.*
- *Help students make connections between current knowledge & new material.*
- *Demonstrate their understanding .*
- *Celebrate their learning!*

What’s the most frequent type of formative assessment?

How to ask questions

Consider the **way** you ask questions, **to whom** you ask them, and **when** you ask them.

Ensure that you are getting formative assessment data about the **whole class** and not just the students who always raise their hands quickly.

Checking for understanding

"OK?"	"On the count of three, put up 0 fingers if you're lost, 5 fingers if you're bored, or some number in between."
"Right?"	"Thumbs up if you agree with me, down if you disagree."
"Got it?"	"Who can explain this concept in their own words?"

Formative assessment tools

Offline

- Thumbs up/down/side
- Fist-to-five
- Stoplight cards
- Red cup/green cup

Online/gamify assessment

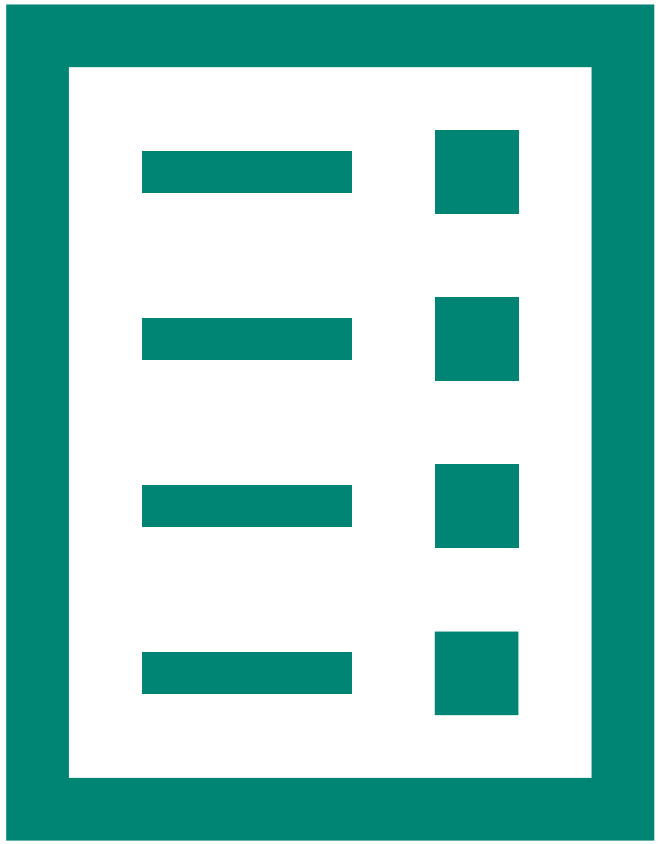
- Socrative
  http://www.socrative.com/
- Kahoot!
  https://getkahoot.com/
- Plicker
  https://www.plickers.com/
- Mentimeter
  https://www.mentimeter.com/
- Newrow quiz
  https://www.newrow.com/

Note: These tools have not been vetted for privacy or security by Microsoft. Work with your school's IT staff to ensure they meet your school's guidelines.

Practice: Lab management

Activity: Follow the directions

- Type
- Write
- Finish
- One
- Explain
- To



Giving clear directions

Effective directions…

- are complete.
- are given in a consistent format.
- are brief.
- are actionable (and specific).
- include time expectations.
- are repeated back by the students to confirm understanding.

When giving directions…

- Prime your students.
- Get their attention first.
- Deliver clear & concise instructions.
- Follow through (don’t change your instructions).
- Reinforce your instructions.

Remote Instruction adds an addition level of complexity amplifying the need for clear directions.

$$\frac{length\ of\ class\ (mins) * number\ of\ instructors}{number\ of\ students\ in\ class}$$

Maximize lab time

~30 sec – 1 minute in each interaction

Triage, actionable feedback, move on.
Do not get monopolized.

See every student's progress at least *twice in 1 period even if they don't ask for help*

Collect formative assessment data
By the end of class, your team should know each student's progress on the lab

Lab time management tips

Tips	Action
Transition Cue	Use **music** or a **"call and response"** as a cue when it is time to transition to another activity or format.
C2B4	Expect students to **"see two peers"** and/or to **check their own notes** prior to requesting instructor help.
Requesting help	Create a system for students to passively request help, like showing a **red/green cup** or post-it or keeping a **queue** on the whiteboard.
Staying on task	Monitor whether students are working on the right task and **gently redirect** them by asking about their progress. Avoid escalation.
Track progress	Establish a shared location to record information about each student's progress during lab.
Divide & conquer	When multiple instructors are present, consider splitting up and using lab time for notebook checks or conferencing with individual students.

Managing lab time proactively

Look over lesson ahead of class.

Where might students have difficulty?

Think of clarifying questions or next steps.

Plan for student misconceptions.

Wrap up

Exit Ticket

https://aka.ms/SupportingClassroomMakeupReview