

Teaching Skills for Technical Experts

version 2.0 - now supports Zoom + Skype + Teams + Slack + your anxiety

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Hi! I'm Tori.

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codemom.net

- Cleveland, OH, USA
- Software Developer IV @ Medical Mutual
- Former full-time technical educator
- CodeMash conference advisor
(codemash.org)
- Crazy cat lady (*cat-themed Vue.js talk available for booking*)
- Was once serenaded in a grocery store parking lot by an Axl Rose impersonator
- MA in art history from a prestigious UK university (good for trivia)



The story thus far...

Q: The guy running this workshop is dropping so many buzzwords, I'm just writing them down to look up later! I'm familiar with the concepts, he's just not putting them together in a coherent way. It's a cross between a lecture and a follow-along and the speaker didn't really commit to either one...

Tori, why don't you give a workshop on how to teach, because a lot of people in tech seem to suck at it?!

A: Challenge accepted.



The art of teaching is the art of assisting
discovery.”

—Mark van Doren



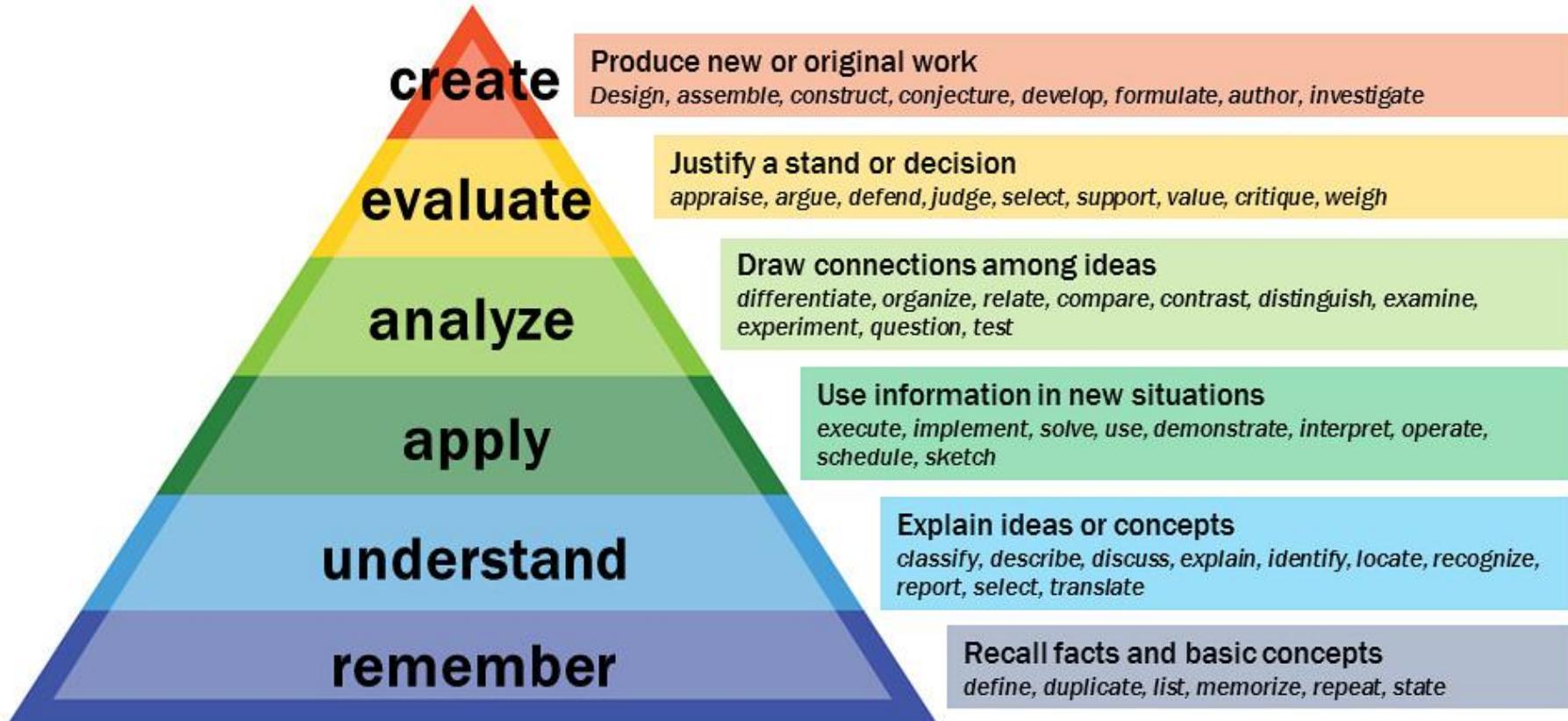
Student

The one who needs knowledge/experience and is attempting to attain it from/guided by the teacher

Teacher

The one who has the knowledge/experience and is attempting to impart it to/guide the student

Bloom's Taxonomy



Bloom's Taxonomy

REMEMBERING

What's a haiku?

UNDERSTANDING

What is the syllabic structure of haiku?

CREATION

Write a haiku

ANALYSIS

What are the differences and similarities between a haiku and a sonnet?

Gardner's Theory of Multiple Intelligences



Misconception:

There is only one way we learn “best” and
students need to be taught in their own
“intelligence”

Reality:

Teaching a topic in 2-3 different ways makes information more likely to “sink in” and be remembered/applied

Lesson planning



Lesson Planning

What do you want the student to learn?

- *Why...? and What is...?*
- Not too broad
- Small, digestible lessons
- Concrete learning objectives

How do you plan on teaching it?

- Learning environment
- Gardner's Theory
- Assessment
- Bloom's Taxonomy



don't make
objectives too
broad



chunk
information



provide "real"
examples



know what
students
don't





Information Chunking

- Cognitive psychology
- Themed “chunks” of info are easier to remember
- The average adult sustained attention span is 10-20 minutes
- Kids? More like 5-10 minutes

Attention ability drops when tasks are not enjoyable, or when performing new tasks



**big picture,
small lessons**



**lessons for
multiple
intelligences**



**the learning
environment**

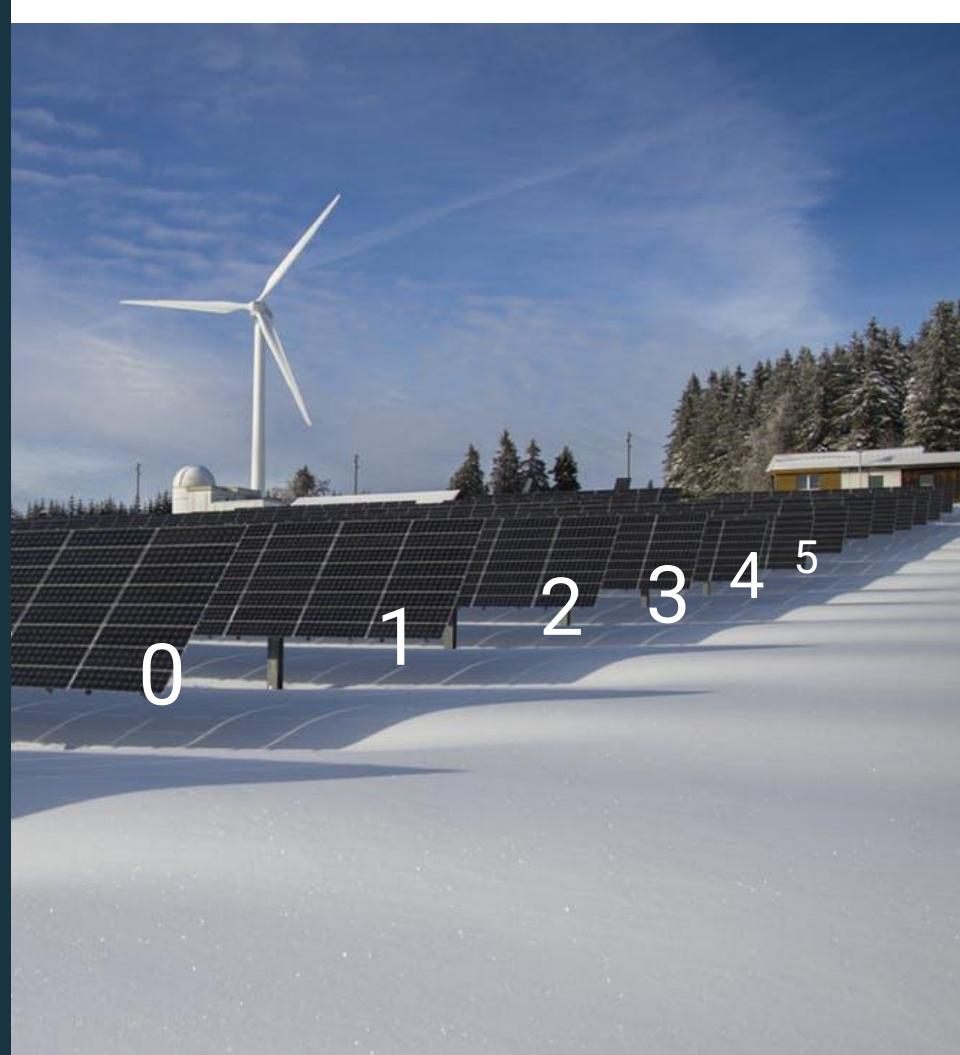


**assessment:
using vs.
understanding**



Arrays

- Data structure
- A collection of things
- Used instead of multiple individual variables
- Each thing has a unique identifier and can be accessed individually
- The unique identifier is an “index” or “key”
 - Starts at 0 instead of 1
- Access an individual thing by the name of the collection and the unique identifier
 - `solar_array[0]`
 - `solar_array[1]`
 - `solar_array[2]`



EDGE Method



Explain

- Explain what you will be doing
- Use visual aids
- Gauge student understanding

Demonstrate

- Show how to do it using actual materials
- Describe as you go

Guide

- Have students practice the skill
- Observe and coach

Enable

- Let students practice the skill without intervention

Explain (Lecture)

- An array is a collection of things

Demonstrate (Live Coding)

- Create an array while students watch

Guide (Practice Tutorial)

- Students create an array in a practice exercise

Enable (Student Project)

- Assign student a project which implements an array

EDGE for the Array Lesson



Assessment

“Assess [verb, with object or clause]: Evaluate or estimate the nature, ability, or quality of.”
-Oxford English Dictionary

Types of Assessment

PRE-ASSESSMENT

- Prior to instruction
- Establishes the student's baseline knowledge

FORMATIVE ASSESSMENT

- During instruction
- Real-time feedback

SUMMATIVE ASSESSMENT

- After instruction
- Measures student achievement after learning

Audience Management

(and how the heck you're supposed to do it over Zoom.)



Ahead-of-time Considerations



Group size

1-5 students? 20+ students?



Environment resources

Whiteboards, projectors,
microphones, workstations, etc.



Environmental factors

After lunch food coma? Meeting
fatigue? Temperature? Lighting?



Attention

Adult focused attention span is
10-20 minutes



Lesson complexity

KISMIF: Keep It Simple, Make It Fun

Welcome to PowerPoint Google Slides Hell

itty bitty tiny font for this tagline, so cute so small awwwww



- do you like bullet points
- i do
- try having a lot of them
- so many bullet points
- folks will read all of them
- i promise
- keep going
- put them literally everywhere
- i freaking love bullet points
- and tiny itty bitty font
- lets you put so much info
- all of the info you could ever
- you could even put more over here
- and keep going with so much information
- i think this slide needs more sparkles
- everyone likes sparkles and unicorns
- i should put a unicorn on this slide
- rainbows tbh #pride
- so many bullet points
- i need another coffee
- i wonder how my cats are doing
- i hope they miss me

- **THIS IS NOT THE time and place to show off your creative font choices**

- Your audience probably ruined their eyesight long ago (can you even read this?)

how is word art still a thing in 2025?

BUSINESS
AND
LEARNING

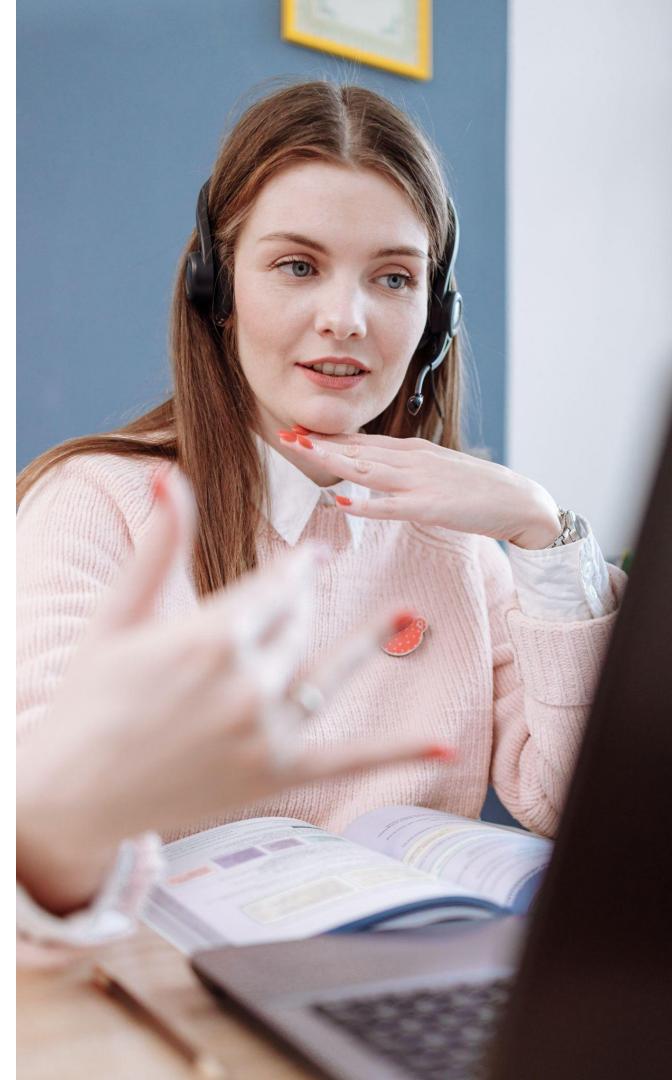
How To Read A Room

- Set the scene
- Shut up
 - Listen for typing, conversations, etc.
- Pay attention
 - Gauge engagement from middle of the room
- Look around
 - Body language & facial expressions
 - Make eye contact
- Take control
 - Ask open-ended questions
- React (but don't be reactive)
 - Acknowledge the mood
 - Look for positive engagement



How To Read A Zoom

- Set the scene
- Don't be a mic hog
 - Listen for audio cues from other attendees
- Monitor engagement cues
 - Watch for mute/unmute, typing indicators, etc.
- Act natural
 - Body language & facial expressions
 - Make eye contact with the camera while speaking
- Take control of the situation
 - Nominate a speaker
 - Ask open-ended questions



Managing Conversations



- Have a plan and/or goal for the conversation
- Active Listening
 - Know when to wait
 - Don't interrupt
 - Ask clarifying questions
- Body Language
 - Yours and theirs
 - Next to, not across from
- Stay solution-oriented

Managing Conversations



- Facial Expressions & Body Language
 - slouching, defensiveness
 - “eye contact” vs. looking off-camera
- Vocal Tone & Modulation
- Active Listening
- Wait For Replies
- Avoid distractions
- Keep meetings short, focused & efficient

Learners are people, too.



A photograph showing a group of people in what appears to be a classroom or workshop setting. In the foreground, a person in a pink shirt is seated at a desk. In the background, two people are standing near a whiteboard. One person is writing on the board with a marker, while the other stands beside them. The whiteboard has some handwritten text and diagrams, including the words "OPTIONS", "GAMES", and "P.S."

Empathy is important.

- Everyone has bad days where they can't focus and are easily frustrated
- You're the teacher?
Congrats, you're also the leader:
 - BE PATIENT.
 - STAY POSITIVE.
 - NO PASSING THE BUCK.

You're the leader, so act like one.



Be Patient

Students can tell when you're frustrated, and will feel as though they're failing you by not learning quickly enough.



Stay Positive

Rephrase any frustrations as challenges to you, not to the student.
Tech is problem-solving, and problem-solving requires persistence.



No Passing The Buck

If you don't know something, find out *alongside your student*.
If you are really frustrated, take a break from the teaching session.

This
presentation is a
toolkit.

- Photos from [Pexels](#), a royalty-free stock photography website.
- Wikipedia: [Bloom's Taxonomy](#) and [Gardner's Theory of Multiple Intelligences](#)
- Cherry, Kendra. [Gardner's Theory of Multiple Intelligences](#), 2019.
- Cuncic, Arlin. [What is Active Listening?](#), 2022.
- Zoom: [Tips & Tricks for Teachers Educating on Zoom](#)
- Bell, Bradford. [Best Practices for Virtual Communication and Meetings](#), 2013.

Further Resources



Thank you!

My name is **Tori Brenneison**, and I'm a programming instructor & sr. software dev from Cleveland, Ohio.

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