

TEALS Summer Training Packet

As you go through your Summer Training sessions for the Microsoft TEALS Program, use this packet as a resource and guide for all session activities. You can use the table of contents below to guide you to specific sessions. You will attend training sessions based on who you are and how long you have been with TEALS.

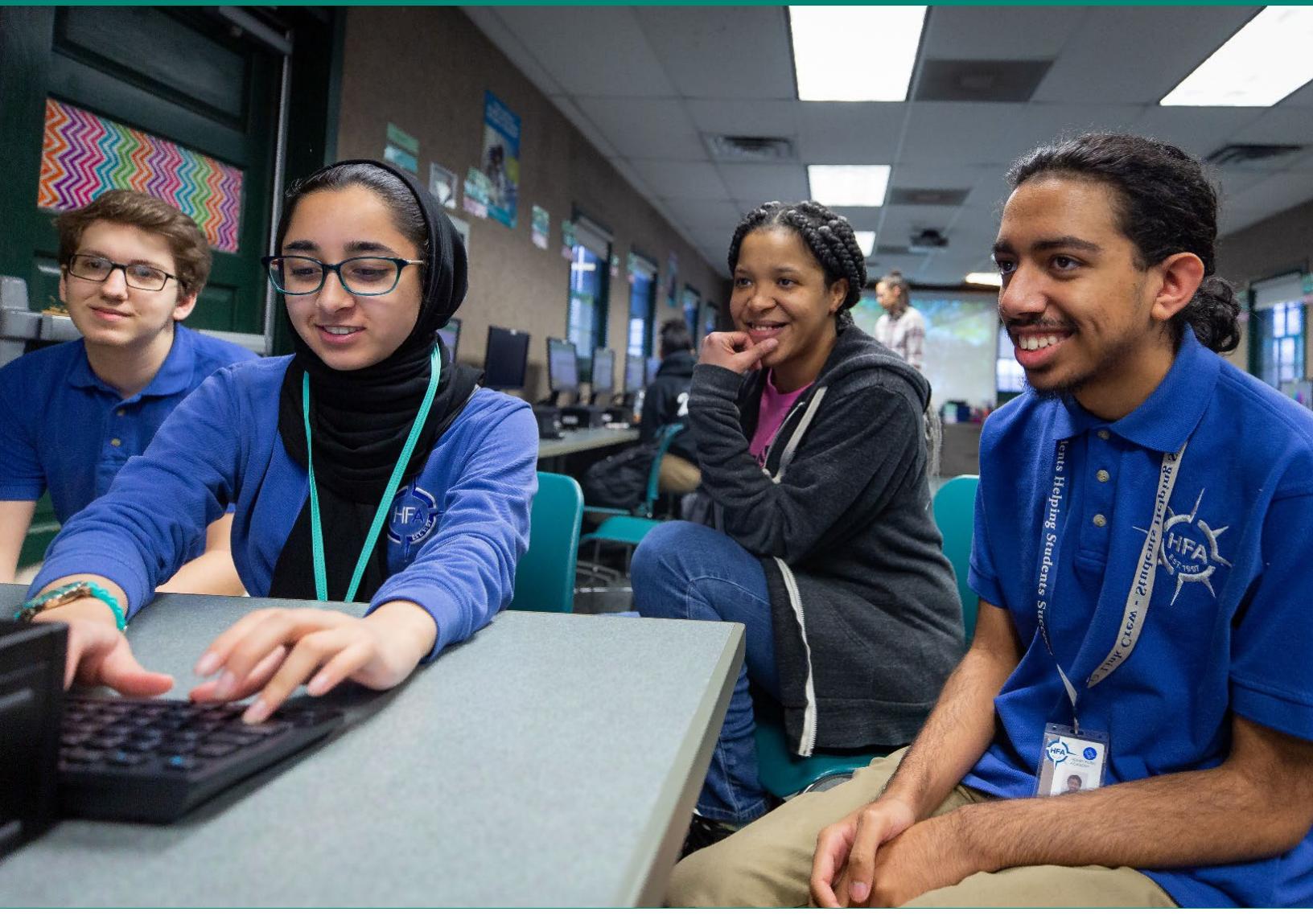


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<u>Team planning 2</u> <ul style="list-style-type: none">• <u>Discussion prompts</u>• <u>Action items</u>• <u>Mock teaching checklist</u>	Everyone
<u>Best Practices in CS Education for Teachers</u> <ul style="list-style-type: none">• <u>Maximizing your teaching team</u>• <u>Teaching while you are still learning</u>• <u>Teaching CS 101</u>• <u>Notional machine and CS teaching methods</u>• <u>Dealing with failure</u>• <u>Putting it all together</u>• <u>Notes</u>	New teachers only
<u>Best Practices in CS Education for Volunteers</u> <ul style="list-style-type: none">• <u>Introduction</u>• <u>Student centered learning and classroom basics</u>• <u>Lessons, assessment, and engagement</u>• <u>Lab basics</u>• <u>Maximizing your volunteer experience</u>• <u>Culture days</u>• <u>Notes</u>	New volunteers only
<u>Self-paced online learning</u> <ul style="list-style-type: none">• <u>Best practices for Hybrid instruction</u>• <u>Best practices for CS Education</u>• <u>Notes</u>	Everyone New volunteers

Team planning 1

Discussion: Meeting your teaching team

Led by classroom teacher

- Introduce yourself, professional role and background in computer science
- Why are you partnering with TEALS?
- As a classroom teacher, how do you hope for the volunteers to support your classroom?
- As a volunteer, how do you hope to support the classroom teacher?

Discussion: Roles

Led by classroom teacher

- What support model will your team be using?
- Discuss your role and what you would like to gain from the school year.
- How will the team build authentic relationships with students?
- Concerns or excitement you have about the upcoming school year.

Discussion: DEI Action plan

Led by classroom teacher

What are some action items you feel could be made based on the commitments made by the school in...?

- Diversity in Enrollment
- Inclusive Learning Space
- Inclusive Instruction

Action items

Classroom teachers

- Claim your class in the TEALS Dashboard (If you haven't already)
- Attend
 - Equitable Computer Science Professional Development
 - Team planning #2
 - [New classroom teachers only] Best practices for CS Education
 - [New classroom teachers only] curriculum provider training.
- Complete Self-Paced Online Training course from the TEALS Dashboard.
- Locate a syllabus from another class (or your syllabus from last year) and bring it to our next team planning training.
- Reach out to your School's TEALS Partnership Coordinator to confirm the volunteer onboarding process has begun.
- Download the [classroom plan](#), share it with your volunteers and complete page 1.
- Submit the classroom plan shared link to the TEALS Dashboard.

Volunteer

Attend

- Equitable Computer Science Professional Development
- Team planning #2
- [New volunteers] Best practices for CS Education
- Complete Self-Paced Online Training course located in the TEALS Dashboard.
- Ensure you have access to shared classroom plan document prior to team planning #2
- Read through the volunteer agreement and provide your signature so we are all on the same page.
- Make sure your mailing address is up to date and correct. This is to ensure you receive items to the correct location from the program.
- Ensure your T-Shirt size is correct.

Notes for Team planning #1

Team planning 2

Discussion: Classroom norms ☀

Led by classroom teacher

Class syllabus

- Expectations
- Policies
- Norms (social media, contacting students, classroom professionalism, dress code, etc.)
- Procedures (Entering the classroom, laptop)
- Grading policy
- Notebooks

Finalize Diversity, Equity, and Inclusion Action Plan

Discussion: Team Communication ☀

Led by classroom teacher

Complete Team Communication section (page 2) of the classroom plan

- Teaching Team Syncs
- Daily handoff
- Back-Channel Communications (Remote teams)
- Teaching Team Schedule

Discussion: Scenario discussions ☀

Led by classroom teacher

Teaching team scenario discussions section (page 3) of the classroom plan

- Crucial discussions
- Ensuring student success

Discussion: Lesson plan discussion ☀

Led by classroom teacher

Lesson plan from curriculum

- Who will prepare the hook?
- Who will lead the instruction?
- Who will prepare the activity?
- Who will prepare an assessment?

By splitting these items up, it makes it easier for everyone on the team.

Action items

Classroom teachers

1. Schedule the first teaching team sync.
2. Reach out to your school partnership coordinator to ensure the background check and volunteering process has been finalized.
3. Complete Self-paced online training course from the TEALS Dashboard.
4. Enter classroom demographics in the TEALS Dashboard.
5. Provide volunteers with a class roster with student names and pictures for volunteers to study and get familiar with the student names.
6. Confirm that the classroom plan has been completed and the shared link is submitted in the TEALS Dashboard.
7. Finalize and send home take home letter to parents.
8. We recommend placing a recurring calendar hold for your teaching team right away to get teaching team syncs in your calendar.

Volunteer

1. Attend Teaching Team sync
2. Complete any background check and volunteering paperwork for the school
3. Complete Self-paced online training course from the TEALS Dashboard.
4. Co-Teach volunteers – Prepare instruction to practice from a lesson in the first unit of the curriculum and deliver in the first teaching team sync.
5. Assist the classroom teachers by preparing the take home letter for them to send out to parents.

Mock teaching checklist

The following is a checklist for the teaching teams first teaching team sync

Volunteer Feedback from the classroom teacher

Look for the following while observing the volunteers while they are teaching:

1. Good visual eye contact or looking into camera
2. Engaging student by name
3. Use of whiteboard to explain ideas or another tool/complier
4. Good communication skills
 - a. Warm inviting tone
 - b. Positive body language
5. No use of expert bias or using language that the students would understand
6. Good use of Questioning techniques learned and providing proper wait response time
7. Use the box below to make notes of any wonderings or observations while they are teaching

Wonderings	Observations

Notes for Team planning #2

Best Practices in CS Education for Teachers

Maximizing your teaching team

Teacher responsibilities and goals

Quick write: What are your responsibilities as a TEALS teacher? 

Think about the following categories:

- Manage classroom and school issues
- Lead the teaching team
- Give and take feedback
- Learn computer science

Activity: Reflection

Why are you a part of TEALS?

What are your goals this year for:

- Your TEALS class?
- Your teaching team?
- Yourself and computer science journey?
- Your students?

What are ways you plan on incorporating these goals into your relationship with your volunteers?

Activity: Breakout room

Introduce yourself:

- Your school
- Your usual preps
- Anything else!

What goals do you have for your TEALS class, your teaching team, yourself, and your students this year?

What do you HOPE to get out of this experience?

Working with your volunteers

Activity: Support your volunteers now

Menu of choices

- Email/text them to let them know you are in this TEALS training
- Contact your school's TEALS Partnership Coordinator to check in about the volunteer onboarding process
- Plan volunteer appreciation ideas for the start/middle/end of the school year

Teaching while you are still learning

Chat Storm

What are you concerned about teaching while still learning the content in your TEALS-supported course?

Presenter Roleplay

Listen to what this could look like

We're going to demo this.

Presenter 1: Hey Presenter, why would I want to use an interface instead of an abstract class?

Presenter 2 (excited, interested): Whoa! I'm not sure! Let's ask our volunteer [presenter 3].

Next question.

Presenter 1: Hey Presenter, my code doesn't work?

Presenter 2 (curious): Hmm, what are you trying to get it to do?

Presenter 1: Print out the answer.

Presenter 2: And what is it doing now?

Presenter 1: Uh.... Nothing.

Presenter 2: Alright, well I don't know what's wrong, but let's figure it out together. Let's add a couple print statements. Let's see the value of this variable after this line.

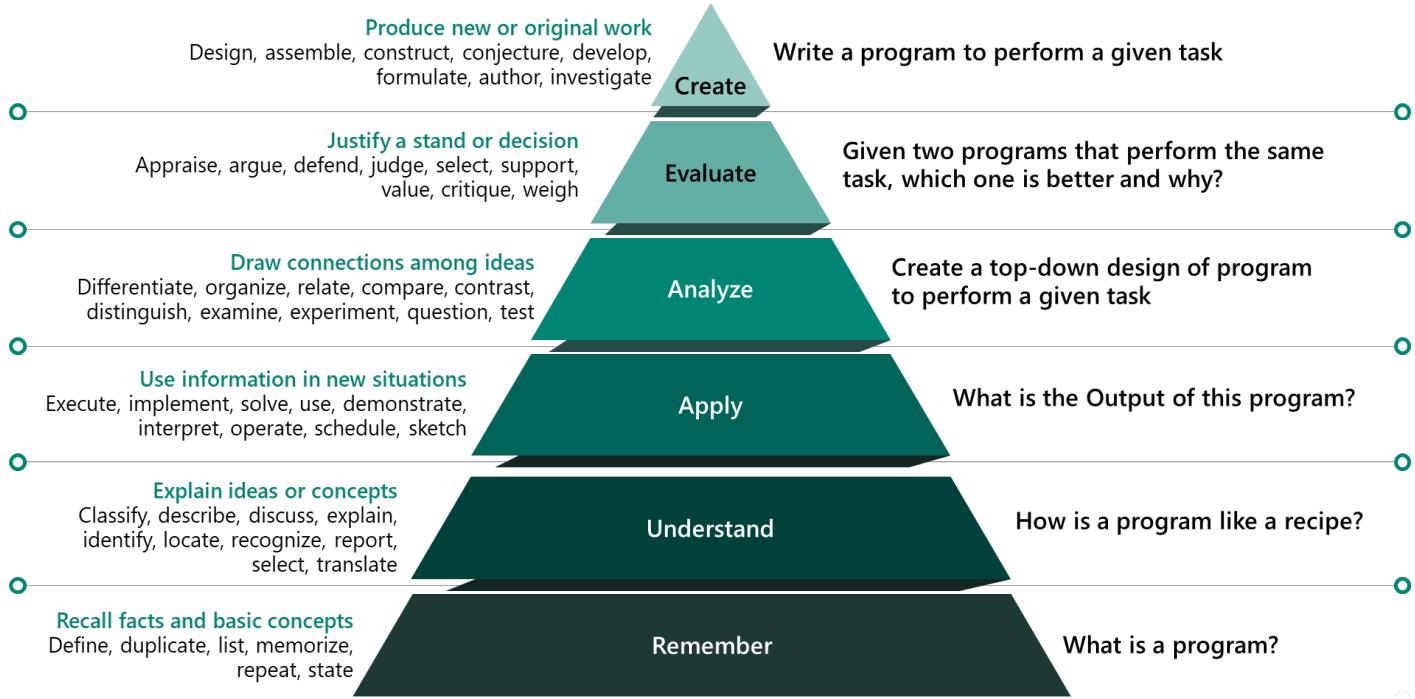
Model with whole group; TEALS staff plays role of student and/or volunteer

Teaching CS 101

Chat Storm

Share some examples of what computer science is *not*?

Blooms Taxonomy in CS



Common programming assignment tasks – Bloom's

Literal translation (Remember)	Summary (Understand)	Code tracing (Apply)
<p>Translate each of the following pseudocode statements into Python code:</p> <ol style="list-style-type: none"> 1. Initialize variable “max” to 0 2. Iterate through each value in the list “numList” 3. Print the variable “max” 	<p>In words, describe what this code does:</p> <pre>max = numList[0] foreach n in numList: if n > max: max = n print(max)</pre>	<p>What value will be printed?</p> <pre>numList = [32, 100, 31, 5] max = numList[0] foreach n in numList: if n > max: max = n print(max)</pre>
Code completion (Analyze)	Parsons problem (Evaluate)	Synthesis (Create)
<p>Insert the missing expression so that this program prints the maximum value from a List stored in the variable numList:</p> <pre>max = numList[0] foreach n in numList: if {MISSING CODE}: max = n print(max)</pre>	<p>Reorder the following lines of code so that this program prints the maximum value from a List stored in the variable numList:</p> <ol style="list-style-type: none"> 1. max = n 2. print(max) 3. foreach n in numList: 4. max = numList[0] 5. if n > max: 	<p>Write a program that prints the maximum value from a List stored in the variable numList:</p>

Chat Storm – Generalization

Don't worry about how that part works.



What are these called?

Brake pedal and what? Answer is gas pedal.

Notional machine and CS teaching methods

Activity: Code Tracing in Snap!



The image shows a Scratch script consisting of the following blocks:

- A yellow **when green flag clicked** hat block.
- An orange **clear** control block.
- A green **pen down** control block.
- An orange **repeat (4)** control block.
- Inside the repeat loop:
 - A blue **move (100) steps** movement block.
 - A blue **turn (90) degrees** control block.
- A green **pen up** control block.

To the right of the script, there are seven numbered lines (1 through 7) corresponding to the steps in the script. Below these lines is a teal box containing the text "Make a prediction about what each line of code does".

Done early? Draw out code output:

Activity: Memory Diagram intro activity



Apple = 1

You pick two more apples from an apple tree



How many apples do we have now? Variable change



Apple = 3 (not 1)

Activity: Apply CS teaching methods

On your own

Look at [TEALS Introduction to CS: Lesson 2.1](#)

Reflect on where in lesson plan you might be able to use CS teaching methods:

- Tracing code
- Worked examples
- Memory diagrams

Discuss the following

Discuss where in lesson plan you might be able to use CS teaching methods:

- Tracing code
- Worked examples
- Memory diagrams

Dealing with failure

Activity: Offering support

Scenario 1: It's three weeks into the school year. Your volunteer tells you about a student in the classroom who is completely shut down and not responding to their questions during lab time. They don't know what to do!

1. What can you say or do to the student?
2. How might you support the volunteer?

Scenario 2: A volunteer tells you during your weekly sync that Fritz has a habit of over-relying on support during lab. The volunteer tries to give an actionable next step, but Fritz refuses to try independently and wants the volunteer to watch their every move.

1. What can you say or do to the student?
2. How might you support the volunteer?

Scenario 3: You notice a student who isn't getting started on their lab after your volunteer's lesson. You watch as a volunteer tries to engage them. The student smiles and say they are okay, so the volunteer walks away.

1. What can you say or do to the student?
2. How might you support the volunteer?

Putting it all together

Activity: Putting it all together!

Closing scenarios

Discuss with your group what you would do in each of the scenarios. Ideas include:

1. Engage your volunteers
2. Use Wise feedback to support

3. Use Socratic method to diagnose the issue and help unblock

Scenario 1

Student asks you a question that you have no idea how to answer.

Scenario 2

During lab, you see a student struggling in a similar place where you struggled completing the lab.

Scenario 3

Your students need more practice with a certain topic, but you've run out of examples in your curriculum.

Notes for Best Practices in CS Education for Teachers

Best Practices in CS Education for Volunteers

Introduction

Word cloud poll

How did you learn CS?

- Think about *methods* your teachers used
- *Strategies* that helped you understand how code executes

Activity: Breakout room ice breaker

- Introduce yourself:
 - TEALS volunteer role (teacher or teaching assistant)
 - Whatever you feel comfortable sharing! Job, location, tech background, hobbies
- Share WHY you became a TEALS volunteer this year!
- What do you HOPE to get out of this experience?
- What CS teaching methods and techniques do you hope to share with your classroom?

Share out

In the chat, share out your WHY!

- Why did you get involved as a volunteer this year?
- What do you hope to get out of the experience?

Student-centered learning and classroom Basics

Write in the chat! Spot the difference

1. Students will be able to identify a *for loop*.
2. Students will be able to create a *for loop*.

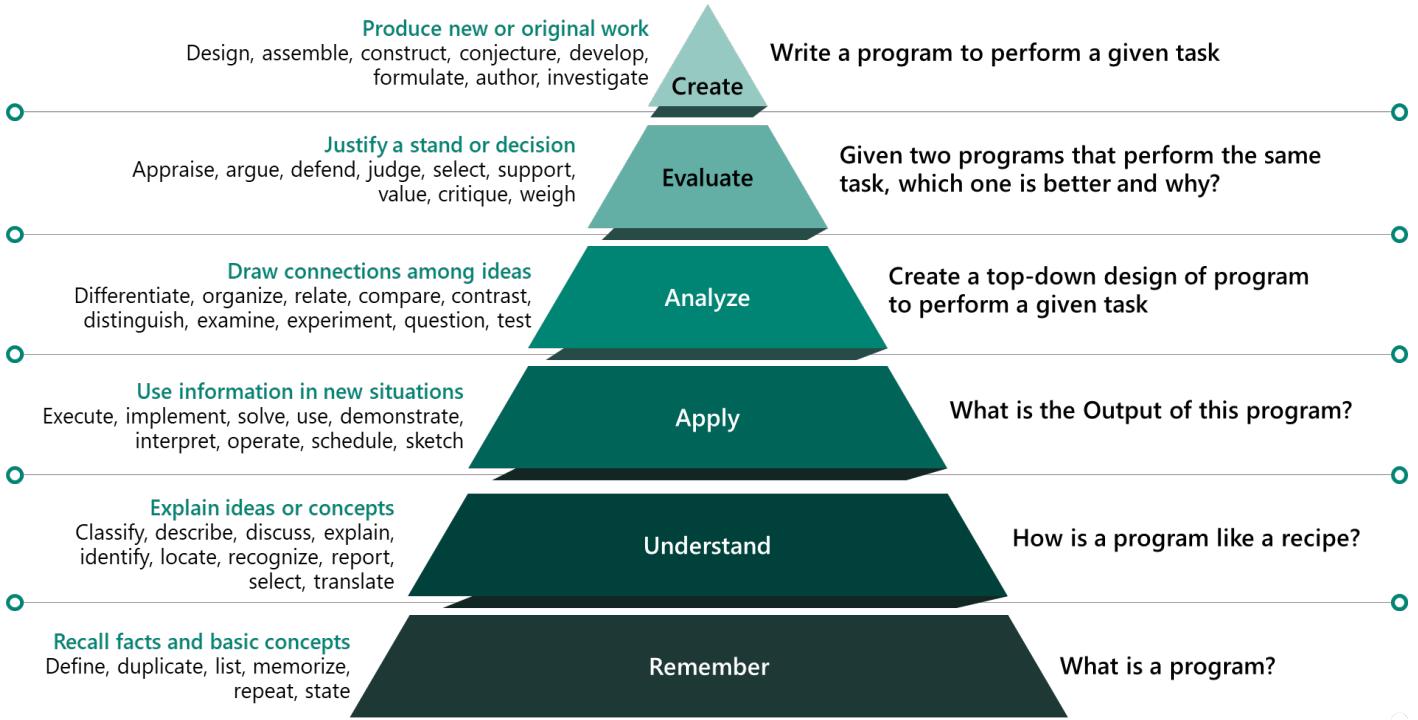
What's the difference between these two learning objectives?

Learning Objectives and Bloom's Taxonomy

Common programming assignment tasks

Chat question: What do you notice about each task? What is similar? What is different?

Bloom's Taxonomy in CS



Common programming assignment tasks – Blooms

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Poll time!

Q1: Learning objectives are...

- A. An essential part of any lesson that help you know what the students need to learn on that day.
- B. An optional part of education that are sometimes included in a lesson plan.

Q2: Which learning objective is not assessable?

- A. SWBAT convert algorithms into python programs.
- B. SWBAT understand python.
- C. SWBAT create a complete program with a class header, body, and main method in Java.

Q3: What is an important take away from Bloom's taxonomy?

- D. Volunteers don't need to worry about it because it's a classroom teacher thing.
- E. Different students focus on different levels of Bloom's for all the tasks they do in CS.
- F. Teaching teams should be aware of classroom activities and make sure they target different levels of Bloom's appropriately.

Lessons, assessment, and engagement

Quick Write

- How did you feel when we did a cold call? (We'll return to this question shortly)

Activity: Parts of a Lesson

Directions: Take notes as the facilitators explain each part of a lesson.

Part of a lesson	Definition
Warmup	
Hook	
Instruction	
Practice	
Assessment	

Connection Point – Formative assessment

Q: What tool did we use today to assess the learning objective, "Volunteers will be able to define what a 'learning objective' is and how they are connected to Bloom's Taxonomy?"

A: Write the answer: _____

Chat storm: You ask a question to the class.

How many seconds should you wait before calling on a student to answer your question?

Type don't send (until we say)!

Enter a number between 0 and 60 in the chat.

Connection Point – Waterfall chat

A waterfall chat is one way to engage students in a hybrid class.

Tip: Type "Go" or "Start" in the chat so that students know when to input their responses.

Think – Pair (Group) – Share

TPS Procedure

- Think (Step 1): Allow students time to reflect on a question/activity themselves
- Pair (Step 2): Students discuss their answers with a pair (or in a small group)
- Share (Step 3): Discuss the question/problem/answer with the full class

Numbered heads together variation: If working with groups, have students count off so they each get a number. During the class share-out, announce one of the 'numbers' to be the reporter. Helps keep all students accountable during the group discussion since anyone can be the reporter!

Demonstration: Modify loop lesson

- Lesson Plan: [Lesson 2.1 \(Loops\)](#) from the TEALS Introduction to CS curriculum
- Teaching technique: "Think aloud" – Watch a presenter look at and add a Think – Pair – Share to a lesson

Think

Where (and how) could you add the following to the *Introduce loops* or *Introduce specific loops* parts of the lesson:

- Another "Think – Pair – Share"?
- or
- A different instructional technique?

Lesson plan: [Lesson 2.1 \(Loops\)](#)

Activity: Group discussion

- Where would you apply another Think – Pair – Share or instructional technique in this lesson?
- Are there any other engagement techniques or formative assessments you would hope to give at this point in the lesson?
- Assign everyone a number from 1 – X

Share out

Raise your hand if you were a TWO.

Reflect

- We just did a Think-Group-Share and attempted a "Numbered heads together" group share out
- What worked well?
- What didn't work well?
- What might you do next time?

Reminder: Activities take time

- Teach and reteach procedures and expectations
- Keep trying!
- Ask your teacher for feedback or watch how your teacher implements common engagement techniques

Lab Basics

Recall question: What percentage of class should lab be?

Answer: 75%!

Chat Storm

- What benefit does learning student names have in terms of your volunteer experience?
- How will you help your students remember your name?

Activity: Follow the directions

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

Follow the direction debrief

Answer the following question in the chat:

- How might a student feel if they were given those directions in a class?

Activity: Waterfall chat

Why shouldn't you just tell a student how to fix their broken code?

Activity: put it all together

What's are the top 3 things you want to remember to take into lab time in your TEALS classroom?

1. _____
2. _____
3. _____

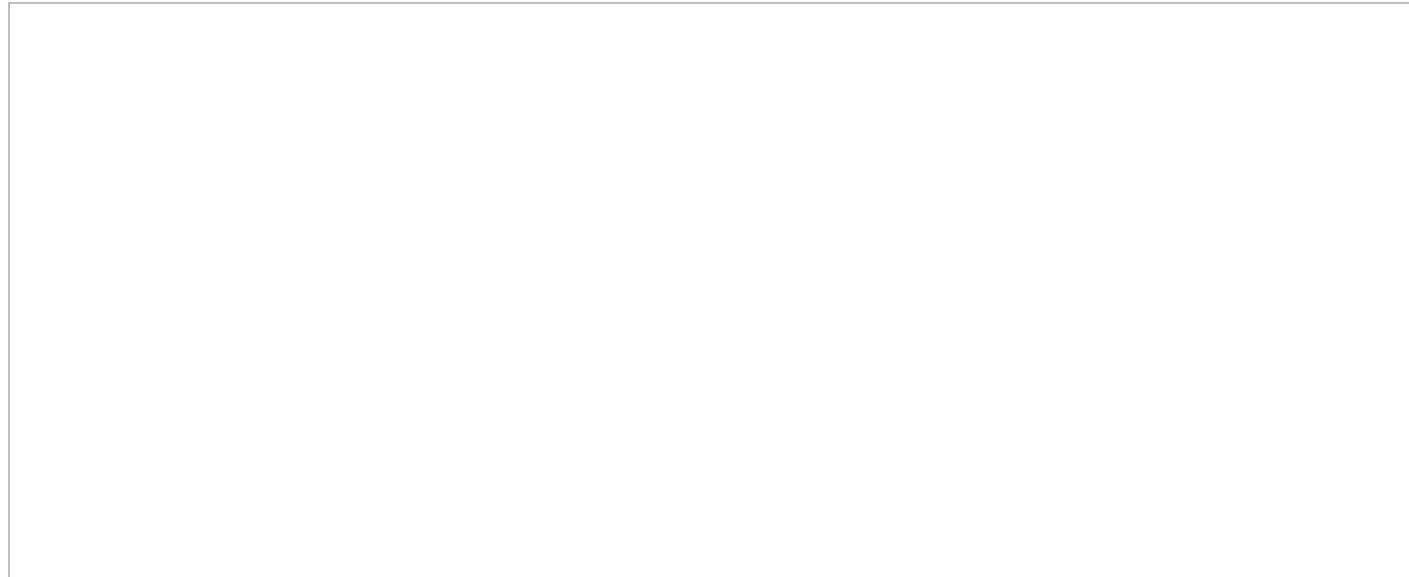
Maximizing your volunteer experience

Memory Game

Get Ready

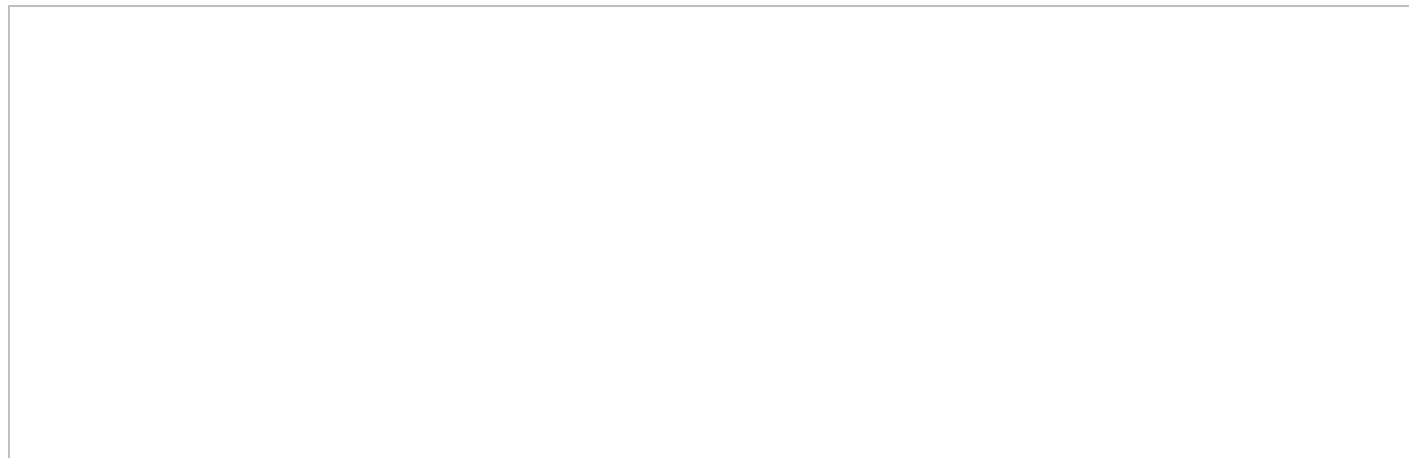
1. 10 seconds to look at picture
2. Then, 1 minute to reproduce the picture in your "notebook"
3. Afterwards, enter in the chat:
 - c. I aced it
 - d. I did OK
 - e. I need work

Draw your image here:



Activity: Quick write – Chunking and expert bias

- How might you give feedback to another volunteer on your team about a lesson that was 'chunked'?



Share out

In the chat share out one way you plan to mitigate expert bias.

Culture days (and moments)

Activity: Menu of Culture Days

What kinds of “culture days” would you like to plan for your class? DREAM BIG!

- Career Talks
- Guest speakers or panel
- Field trips (virtual or in-person if possible)
- CS research projects on a topic, career, company, university program
- Tech in the news segment
- Coding demo

Write your ideas here:

Share out

In the chat share out a culture day you would like to implement.

Example culture day lessons:

Culture Day Lesson A: Real world video or selected reading [TEALS Program \(tealsk12.github.io\)](#)

Culture Day Lesson B: Student research project and presentation [TEALS Program \(tealsk12.github.io\)](#)

Culture Day Lesson C: My skills and interests journal [TEALS Program \(tealsk12.github.io\)](#)

Culture Day Lesson D: Interview people in technology fields [TEALS Program \(tealsk12.github.io\)](#)

What kinds of “culture days” would you like to plan for your class? DREAM BIG!

Think: Independent work time (5 minutes)

Draft your career talk telling students about your journey into tech

- Where? Summer Training Packet or notebook
- What? Choose what part of your journey into tech you want to focus on

Group: Breakout room time?

- Share your tech journeys!
- Provide each other feedback
- How did the speaker engage the audience?
- Is the job description easy to understand for non-technical audience?
- Did the person use any jargon?

Share: Full group

- What types of stories did your group focus on?
- What engagement techniques were used?
- Was it easy to understand for a non-technical audience?

Notes for Best Practices in CS Education for Volunteers

Self-paced Online Training

Best Practices for Hybrid Instruction

Reflect

What model will your classroom be using this fall?

Take moment and reflect

Presence: Understand the technology situation

- What is the bandwidth of students at home or in the building? Is there sufficient bandwidth for students to be productive?
- Are all the links and tools available on the school network?
- Should or when are cameras on/off? What are the school policies around camera usage?

Best Practice for CS Education

How can a student focus on a lecture?

- < 1 minute
- About 5 minutes
- 5-10 minutes
- 15 minutes or less
- 16-30 minutes
- At least an hour

Instructional techniques brainstorming

Think of a time you learned a new technical skill

- Write an outline of your journey.
- List the resources that helped you.
- Star or underline the most important steps.

Sample Lesson

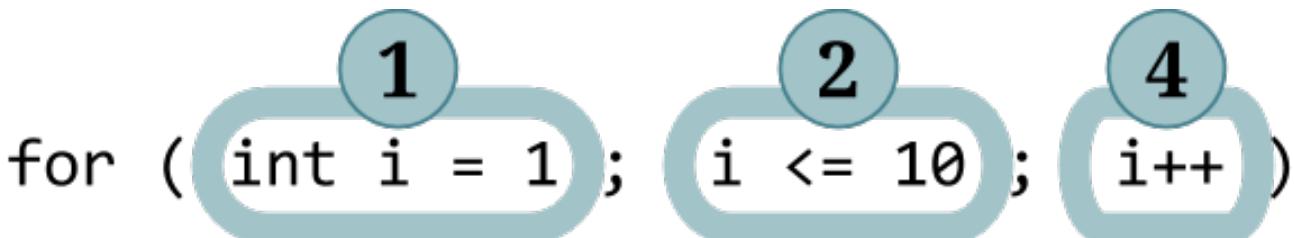
4. Pretend you are in the role of an AP CSA student
5. Look for elements you recognize from previous training
 - What structure does the lesson have?
 - What instruction formats are being used?
 - What questions are being asked?
 - What other techniques are used?

Example [lesson 2.05 For Loops](#) from the TEALS AP CSA curriculum

For Loops

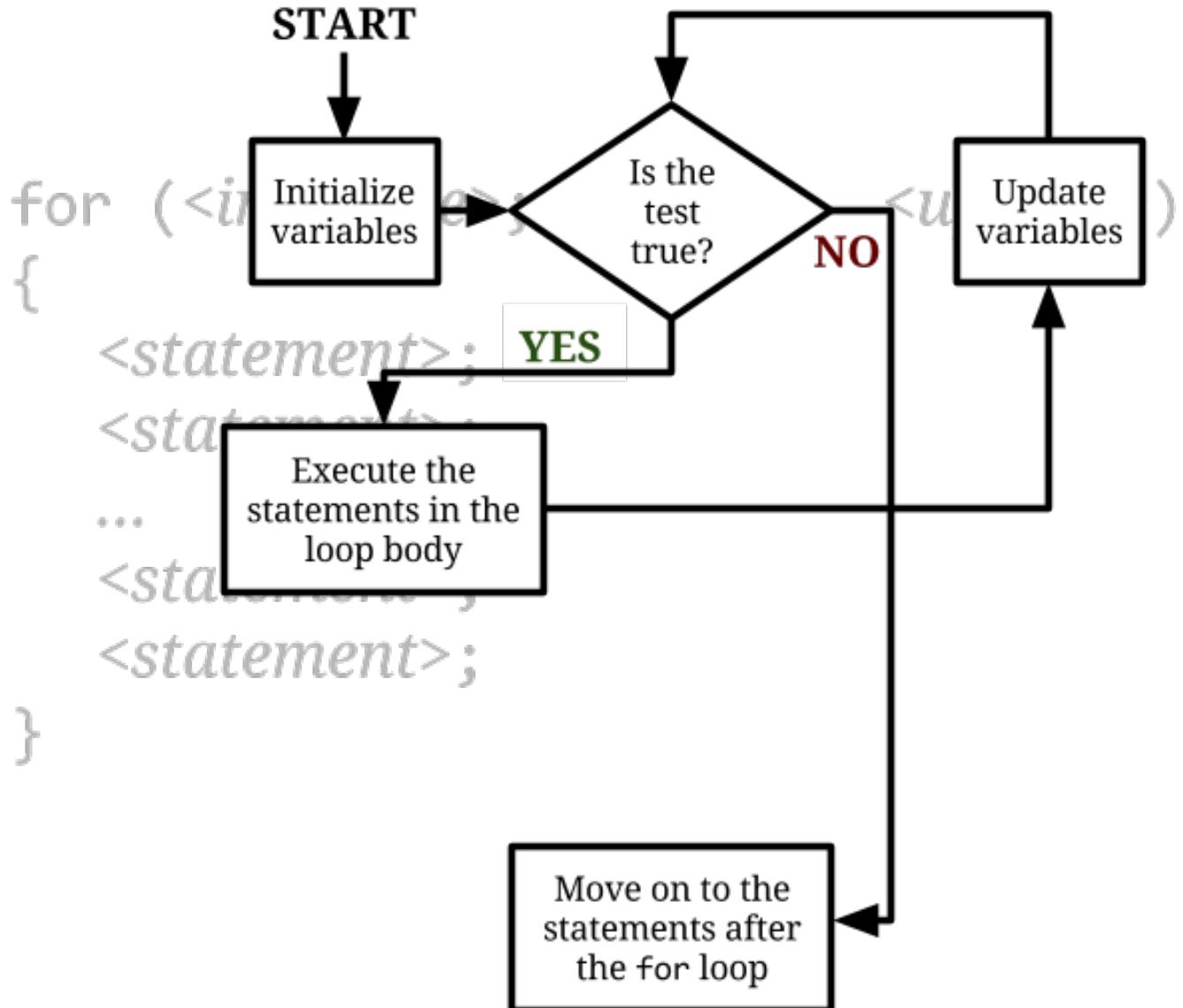
Parts of a for loop:

1. **Initialize variables:** Here we declare new variables and set them equal to values. In this example, the variable i of type int is created and set to a value 1, and Java moves on to Step 2 (see below).
2. **Test to continue:** This is an expression that Java will evaluate (to true or false). If the expression evaluates to false, Java exits the for loop. If it evaluates to true, Java moves on to Step 3:
3. **Loop body:** This is a block of Java code containing one or more Java statements. Java executes each of these statements, then goes to Step 4:
4. **Update variables:** This tells Java what to do to update the variables involved in the for loop. After updating the variables (in this case, adding 1 to the int variable i), Java goes back to Step 2.



```
{  
    System.out.println("----");  
    System.out.println(i * i);  
}
```

Flow of control in the for Loop:



The for loop is an example of a **control structure**. A control structure is a structure of code that controls other statements.

Notes for Self-paced Online Training