

<https://canva.link/8ic6uifci2t641e>

Device OPTIONAL INTEGRATION

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SHOUT OUT

ARE THESE FAMILIAR TERMS?

sequencing

decomposition

evaluation

generalization

abstraction



patterns



LITERACY

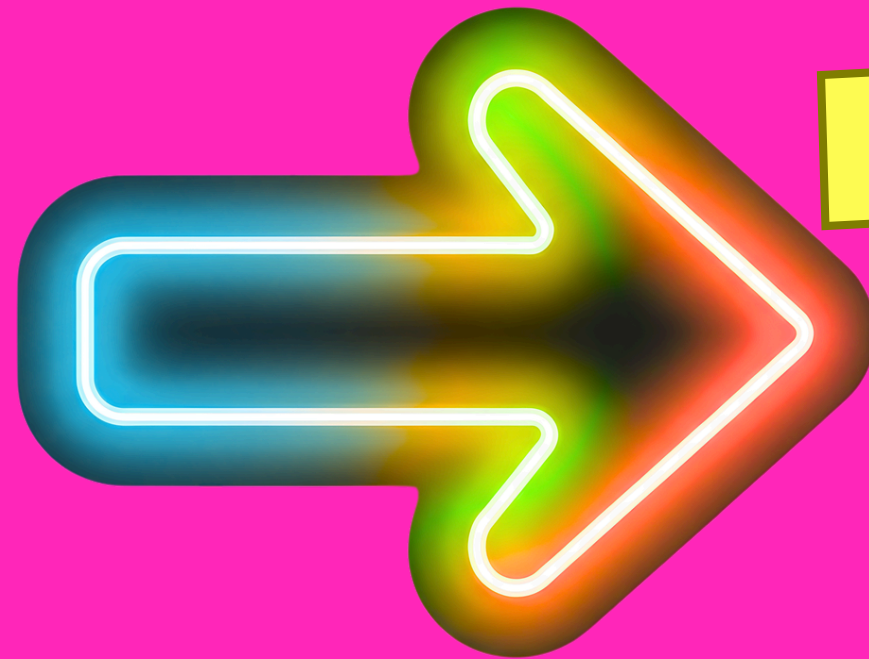
FOUNDATIONAL SKILLS

COMPUTER SCIENCE	READING LITERACY	MATH LITERACY
SEQUENCING/ALGORITHMS	BEGINNING-MIDDLE-END	PEMDAS
PATTERN RECOGNITION	TEXT FEATURES	INPUT/OUTPUT RULES
ABSTRACTIONS	MAIN IDEA & DETAILS	WORD PROBLEMS
CONDITIONALS	INFERENCE & PREDICTION	OPERATION SELECTION
DEBUGGING	REVISE/EDIT	FIND & CORRECT THE MISTAKE
DECOMPOSITION	CLOSE READING	WORD PROBLEMS
DATA & REPRESENTATION	PLOT DIAGRAMS	GRAPHING/NUMBER LINES



STRATEGY

**ISOLATED
SUBJECT**



**INTEGRATED
STRATEGY**



POWER OF COMPUTER SCIENCE



- **ACTIVE EXPERIMENTATION**
- **TRIAL AND ERROR, MULTIPLE METHODS/SOLUTIONS**
- **DETERMINATION, PERSEVERANCE & CONFIDENCE**
- **PROMOTES A GROWTH MINDSET**
- **LOW PRESSURE RISK TAKING = FUN**
- **INSPIRES CREATIVITY (& LESS CONSUMPTION)**
- **MAKES THINKING VISIBLE**
- **PRODUCTIVE COLLABORATION & TEAMWORK**
- **CAREER (AND LIFE) READINESS**

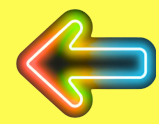


COMPUTER SCIENCE IS NOT JUST ABOUT DEVICES ...IT'S ABOUT THINKING!



EXAMPLES


COMPUTER SCIENCE	ACTIVITY	GENERALIZATION
SEQUENCING/ALGORITHMS	<u>CODE A FRIEND</u>	PROCEDURES
SEQUENCING/ALGORITHMS PATTERN RECOGNITION DATA & REPRESENTATION	<u>COMPUTERS AND ALGORITHMS</u>	INPUT/OUTPUT GRAPHING
PATTERN RECOGNITION ABSTRACTIONS	<u>THE MITTEN</u>	RETELLING A STORY
DEBUGGING EVALUATION	<u>BUG HUNT</u> <u>BUGS, BUGS & MORE BUGS</u>	FINDING & FIXING ERRORS WORD PROBLEMS SENTENCE SKILLS
DATA & REPRESENTATION	<u>TREASURE HUNT</u>	MAP SKILLS
GENERALIZATION	<u>*PIRATE ESCAPE*</u>	NOTE TAKING CLUES/EVIDENCE








CODE A FRIEND



How To
pick a book



How To
read a book

DEVICE OPTIONAL	
CRITICAL THINKING	
INSPIRES CREATIVITY	
PROMOTES COLLABORATION	
REVEALS STUDENT THINKING	



DRAW AN ALGORITHM

algorithm

a list of steps to finish a task.

How to carve a jack-o-lantern...

Get a pumpkin Draw a face Cut the face Put a candle inside

Click, drag and resize to create a bar graph.

4			
3			
2			
1			

Make Your Own Function Machine

Directions: Write the function in the middle of the machine. Then, write the inputs in the boxes on the left. Using the function, change the input to the correct output and write it on the boxes on the right.

input		output	input		output
<input type="text"/>		<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="text"/>		<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="text"/>		<input type="text"/>	<input type="text"/>		<input type="text"/>

www.twinkl.com

CS Fundamentals: Intro to Code Studio (Course A) [Copy link](#)

MAZE INTRO

PROGRAMMING WITH BLOCKS

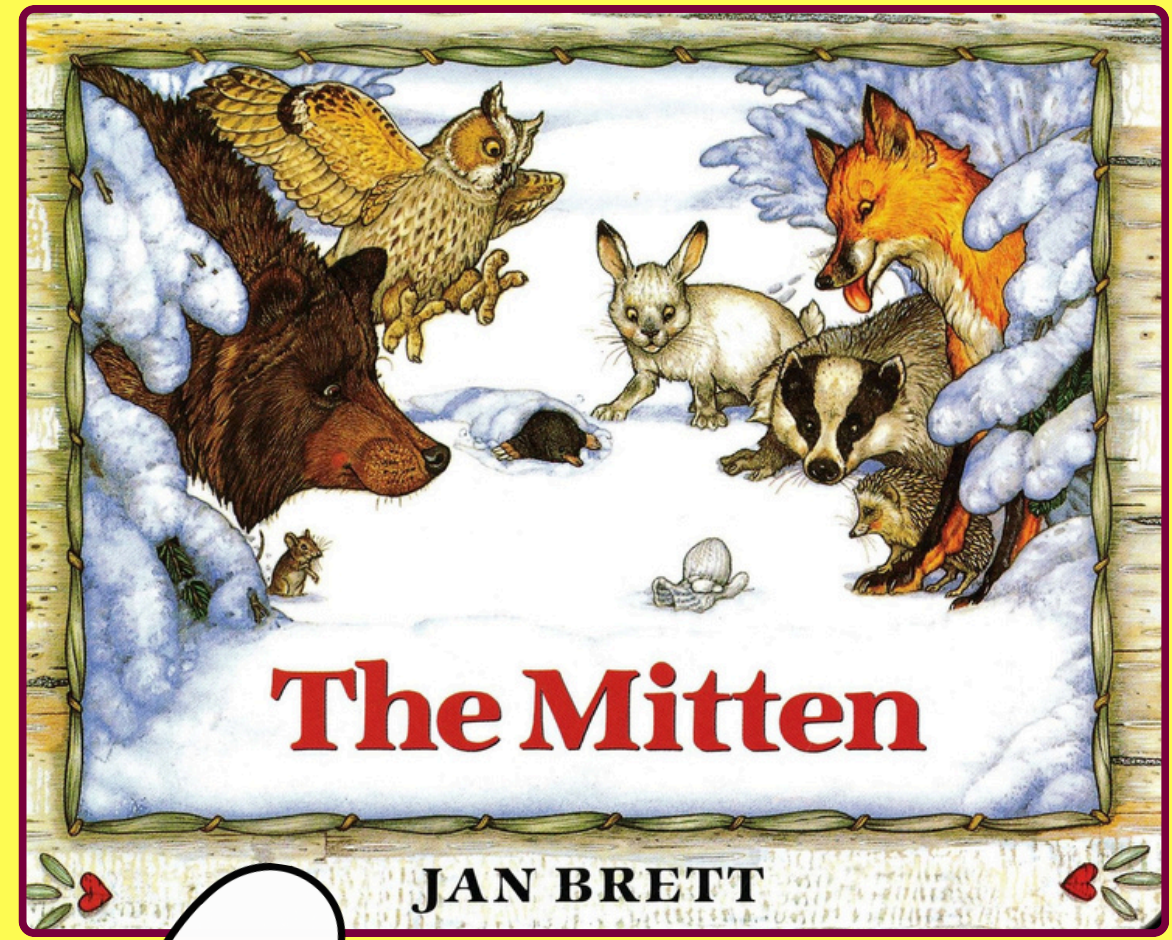
Watch on YouTube

CSF


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PATTERNS/ABSTRACTION



Challenge #6






Use a Treasure Map 

Program your **BOT** to get from the rowboat to the ladder on the south end of the beach. Use ≤ 6 commands to reach your destination.

Write your program from left to right using directional labels (N-S-E-W):

BONUS: Write a coding program with arrows on the back of this page. *Start with eyes facing N!



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DEBUGGING

Bug Hunt

Lesson 4: Debugging in Maze

Instructions For Teachers Only

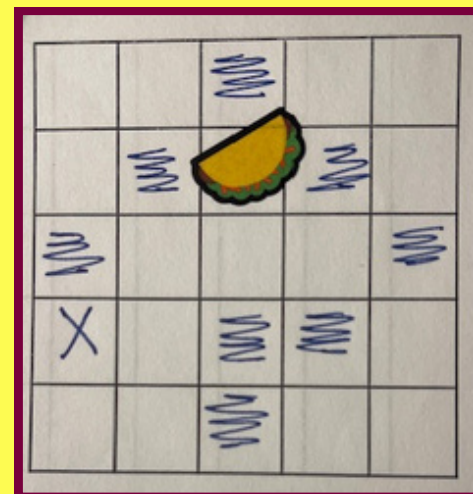
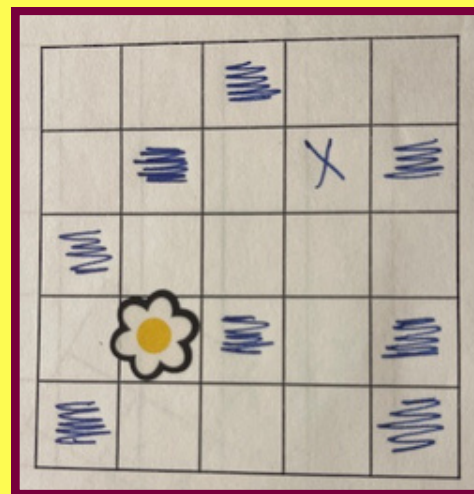
Figure out what is wrong and get Scrat to the acorn.

What do code bugs do?

CS Fundamentals: Debugging with the Step B...

DE-BUGGING WITH THE STEP BUTTON

CSF



move from the X to the cherries

```

when run
  turn right 90
  move backward
  move forward
  turn left 90
  move forward
  move forward
  
```

where's the bug?

Rewrite the code here...

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DATA & REPRESENTATION



TREASURE HUNT

Yo Ho, Young Buccaneers!

Your quest is to write a code that leads your crew to the treasure at each map station.

Can ye and your mates discover which algorithms unlock the treasures?

Hoist the sails and let the Treasure Hunt begin! Arrrr!

Crew Members:

- Green dot: _____
- Red dot: _____
- Blue dot: _____

XXXX XXXX XXXX

SCURVV

Start at the cave (C3). Write your code using these symbols: S ↓ → ↑ X

Start: Arrows = N, S, E, W X = stop (Treasure)

Chart your treasure code on the grid.

Test it out on the maps. Which treasure does this algorithm unlock?

Map #1 Map #2 Map #3

Map #1 Map #2 Map #3

PLUNDER

Start at the pirate ship (E3). Write your code using these symbols: S ↓ → ↑ X

Start: Arrows = N, S, E, W X = stop (Treasure)

Chart your treasure code on the grid.

Test it out on the maps. Which treasure does this algorithm unlock?

Map #1 Map #2 Map #3

RANSACK

Start at the volcano (B3). Write your code using these symbols: S ↓ → ↑ X

Start: Arrows = N, S, E, W X = stop (Treasure)

Chart your treasure code on the grid.

Test it out on the maps. Which treasure does this algorithm unlock?

Map #1 Map #2 Map #3

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← GENERALIZATION



SUSAN PRABULOS, LPS

Pirate Escape Room - Journal

- COMPOSER: tracks steps that you've tried (writer)
- NAVIGATOR: guides the team with words
- DRIVER: controls the device
- TEAM: works together!

Clicked?	Clue...

Pirate Escape Room - Journal

Clicked?	Clue...

Pirate Escape Room - Journal

Clicked?	Clue...

Other Clues?

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IMAGES FROM [HTTPS://SCRATCH.MIT.EDU/](https://scratch.mit.edu/)

GET STARTED

STANDARD + CONCEPT

Create a (gradelevel) (subject) literacy lesson aligned with (standard). The lesson should integrate (concept) as a computational thinking skill, include active and collaborative student engagement strategies, and make student thinking visible through discussion, reflection, or artifacts. Provide both a device-optional (unplugged) version using hands-on materials and a device-supported (plugged) version. Include clear guidance on where students may struggle, and explain how productive mistakes can be leveraged to support literacy learning. Structure the lesson in (format) ensuring it is paced for a (time) session and includes opportunities for observation, discussion, and evidence-based reasoning.

NOTICE THAT THE PROMPT DOESN'T ASK TO ADD "TECHNOLOGY", IT ASKS TO STRENGTHEN INSTRUCTION BY MAKING THINKING VISIBLE, KEEPING STUDENTS ACTIVE AND STAYING GROUNDED IN STANDARDS, THE DEVICE IS OPTIONAL, THE THINKING IS NOT!

RESOURCES



CSTA STANDARDS SEARCH TOOL

NEBRASKA CS GUIDANCE

**USED
FOR
THIS
PRESENTATION:**

YOUTUBE.COM

CODE.ORG

ACHIEVETHECORE.ORG

CHATGPT.COM

GEMINI.GOOGLE.COM

SCRATCH.MIT.EDU

CANVA.EDU



THANK YOU FOR ATTENDING DEVICE OPTIONAL INTEGRATION

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