Sequencing with Multiple Logic Paths: Robot Mouse Obstacles (Unplugged ver.)

ReCT
Rethinking Circle Time

Lesson Summary	Three versions (unplugged, embodied, CT toy) with three different course options - randomize the order of the version and use a different course (map A, map B, map C) for each version. In this **unplugged version** lesson, students work on creating multiple logic paths to avoid obstacles. Students use a board game setup to move the paper mouse through a printed version of the course. Students get the mouse to the cheese on a previously determined map requiring they go through all of the tunnels.
Grade Level	K-2
Subjects Addressed	**Computational Thinking:** *Algorithms & Procedures:* Forwarding and reverse sequence. *Debugging:* Finding and fixing errors in their code (the sequence of arrows).
Standards	● CSTA: 1A-DA-06, 1A-AP-08, 1A-AP-09, 1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14
Learning Objectives	Students will be able to: ● **Computational Thinking:** ○ *Algorithms & Procedures* - Create a sequence of steps using coding cards to solve a given problem ○ *Data Representation* - Represent their sequence through coding cards ○ *Debugging* - Revise their coding identifying and fixing mistakes
Teacher Background and Content Information	● **Sequencing:** Sequencing is a part of the idea of algorithms. Algorithms are step-by-step, ordered procedures to accomplish a task. Students must learn how to create directions using coding cards first so students can move following them and produce the intended result. ● **Debugging:** When students code the directions, it might not work as expected because of mistakes they might have made when planning the directions. The process of identifying and fixing errors in the code is known as debugging. They will need to engage in debugging all the time throughout the activity by revisiting their plan and making changes. ● The order that students are required to pass all of the tunnels before they can get to the cheese matters, but the order in which tunnels students pass first or which directions students choose does not matter. ○ Note whether or not students understand the order that does matter (requirement to hit all of the obstacles before they can reach the cheese) ● While administering any of these activities, it is important to keep an eye out for students understanding of sequence ordering

	- Observe and document student planning, coding, and debugging through notes and pictures. - Note how students utilize the coding cards, map, and course to determine the order they choose.
Differentiate/ Inclusion	- Small Group Work: This activity also can be done with a small group setting. Students can take different roles, such as Navigator (who plans the sequence using direction cards and read it to the driver), Designer (who helps navigator and record how many tries it takes to succeed), Driver (who moves the mouse to cheese following navigator's plan), and Debugger (who points to each step in the plan as the mouse move and solves the problem). - The number of tunnels & walls: To add more challenges, students can have more tunnels and walls on the board. - Reverse task: To add more challenges, provide reverse options to students and have them bring the cheese back to the start point.
Materials	A game-board, tunnel(s), wall (Map B & C), 1 mouse, 1 cheese, direction cards, tape and velcro if needed. - Print direction cards - Print game-board and cut it out along the dotted lines - Print and cut out 1 mouse, 1 tunnel, and 1 cheese on the dotted lines (Map B has one wall additionally/ Map C has 2 wall and 1 more tunnels additionally) - Assemble the tunnels by folding along the solid lines to create flaps (Map B & C) Assemble the walls by folding in half on the solid line in the center then folding the other two lines up to create flaps - Print and cut out the map card - Set up the game as shown on page 5-14 - Tape the tunnel flaps to the board to create the arch-like shape for the students to guide the mouse through - Alternatively slits can be cut in the game board so the flaps can be fed through the board and taped to the bottom instead of being visible sitting on top (Map B & C) Tape the wall flaps to the board to create the boundaries - Alternatively slits can be cut in the game board so the flaps can be fed through the board and taped to the bottom instead of being visible sitting on top - Additionally velcro can be used with one side on the cheese piece and one side on the mouse piece

Overall Description

Launch/ Engage	1. Gather students and sing a song together. **"Walking in the Jungle"** *Say: Before we begin our activity today. We are going to sing this song together. Let's see how we can step into the jungle and what kinds of animals we will meet.* Let's take a walk in the jungle / Walking in the jungle, Walking in the jungle/ We are not afraid, We are not afraid / **One step, two steps, three steps forward** / **One step, two steps, three steps back** / Stop, Listen, What is that? / It's a frog! / We are not afraid / (It's a tiger / Run!) ● If students are already familiar with this song, you can change the lyrics with other animals (e.g., mouse, tiger, etc), steps (e.g., stomp, jump, skip, etc), direction (e.g., right, left, etc) or let them stand up and move their bodies along the song. *Ask: What kinds of animals did we meet in the song? Which animal did we meet first?* This song will prepare students to learn the words to use for giving direction (forward, back, left, and right) and to learn the sequence (the order of animals that they meet in the song).
Explore	1. **Introduce the activity** *Ask: What kinds of materials can you see here? Can you think about what we will do with these?* Say: *You are going to get to have this mouse piece, and like how we took a walk in the jungle, we are going to make steps for the mouse to find the cheese.* Point to the direction cards and say: *These are direction cards that will help you think and plan out the directions to go to get cheese. First, **think** in your head and **show** what you think using these cards, and **move** this small mouse piece across the squares to reach the cheese following your plan.* Point to the tunnel(s) (and wall for Map B & C) and ask: *What is this for?* This question helps students understand and remember the rule. Say: *The most important rule is that you have to make sure your mouse uses all of the tunnels before it can reach the cheese.* ● If you choose Map C, emphasize them there are two tunnels that they need to pass, but the order in which tunnels students pass first or which directions students choose does not matter. *Ask: Are you ready to make a plan for the mouse to get cheese? Do you have any questions?* 2. (Optional) **Clarify the rules**. Demonstrate how this activity works with a student volunteer. Say: *Let's plan and carry out this together first. Who wants to help me play this game?* Show how to plan with direction cards and how to move the mouse following the plan. This modeling helps students to understand the rules clearly. If a volunteer student does not pass the tunnel/follow the plan/get the cheese, talk about the problem and how to solve it with other students. *Ask: Is there anything that we need to revise our plan?*

Say: *The mouse can only move following what you ask to do. If you give a wrong direction, the mouse won't be able to get cheese, but you can always revise your directions and fix it, so do not worry. You can plan out whatever makes sense to you, following the rules we just talked about.*

3. **Planning with direction cards**

Say: *Okay, it's your turn to start planning the way the mouse to get to the cheese!! You can use the direction cards to come up with your path but remember the mouse has to use the tunnel(s) before it can get the cheese.*

4. **Carrying out the plan and Debugging**

When the students are done laying out their plan for the mouse piece, bring out the physical game board. Make sure students place the mouse piece in the same orientation as shown on the corresponding map card (page 5-14).

Say: *It's time to test out your directions to see if the mouse can get to the cheese!*

Ask the following questions based on student actions:
- If students don't go through all of the tunnel(s) say: *You did a good job but I noticed that the mouse didn't go through all of the tunnels before it reached the cheese. Let's try again and follow all of the rules this time*
- Note if the ways in which students talk about or approach the task change from the map card version to the physical game board
- If students zigzagged all over the board or used minimal space ask them why they made those choices Ask: *Can you tell me why you chose to go this way?*

Note the path students take and ask questions to understand why students went through tunnels in the order they chose as well as the directions they chose to take.

Summarize/ Explain

1. **Wrap-up**

Say: *Today, we made a nice plan with direction cards and helped mouse get a cheese. We all did a great job!*

Ask questions to find out how students used the tools to make decisions when planning and executing the task. *Ask: What kinds of tools did we use today? How did it help to complete this activity?* (e.g. direction cards)

Share students' experiences on the activity, Ask: *Anyone who wants to share how it was? What were your favorite parts? Any challenges you had?*

If students could not complete the activity or had issue with coding, share the photos taken during the activity, and help them solve the problem together. Ask: *Anyone who wants to explain what happened? How can we help solve this problem?*

If there are students who needed more time to complete the task, let them know there would be a different version of the mouse game next.
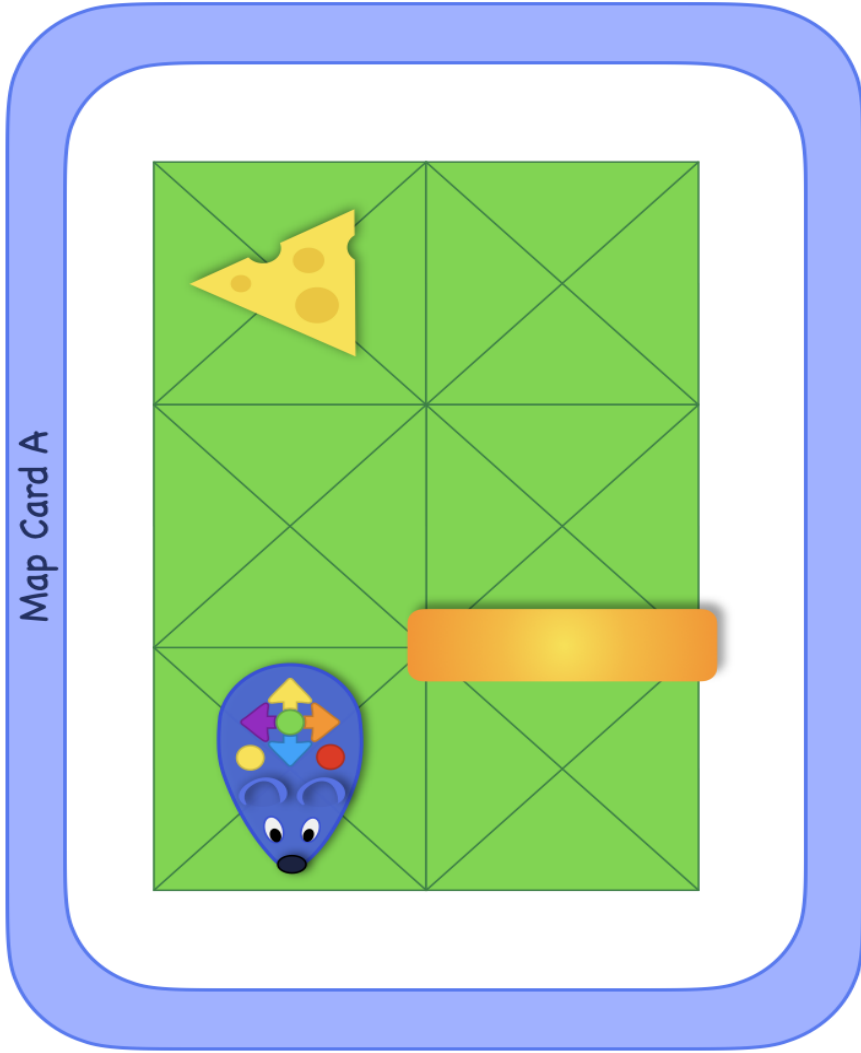

Apply/ Extend

- New obstacles: Have students create their own board game by adding more tunnels/walls or other obstacles (e.g., cat, house)
- The Shortest & Longest way: By counting how many directions cards students used, check who went through the shortest way or longest way. This activity can be integrated with arithmetic.
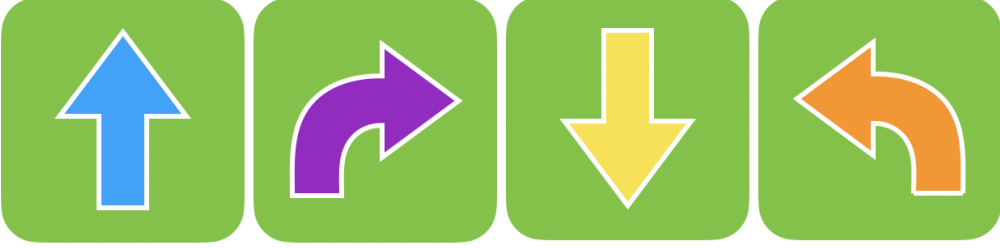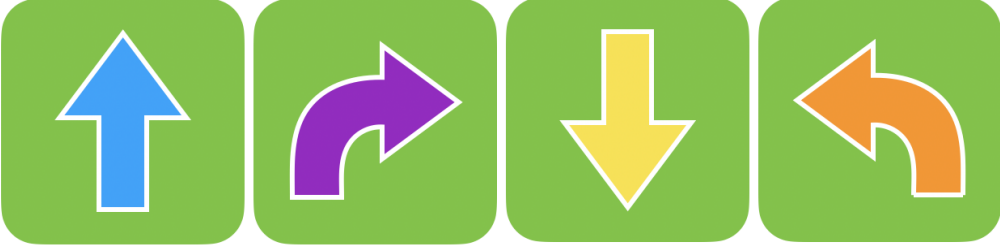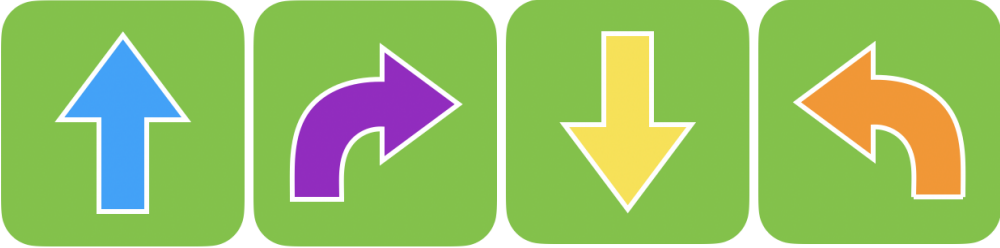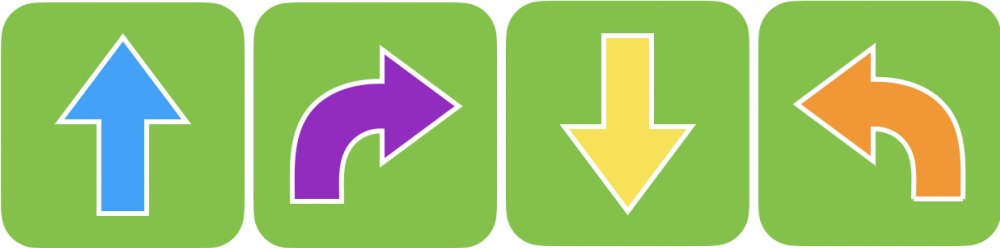
Teacher Notes

Print out materials

Map A

Map Card A

Direction cards (Map A, B, C)
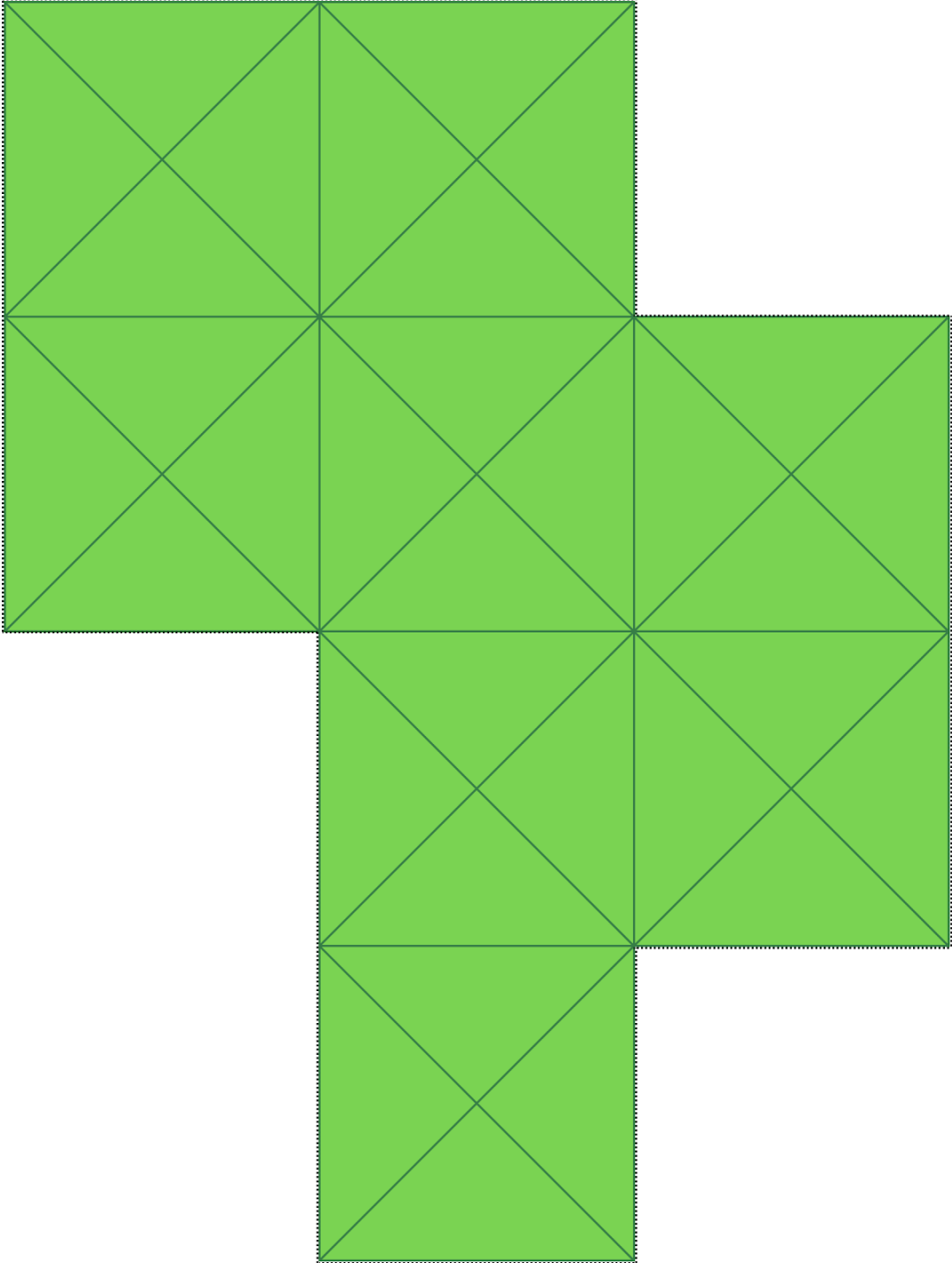
Map A game board
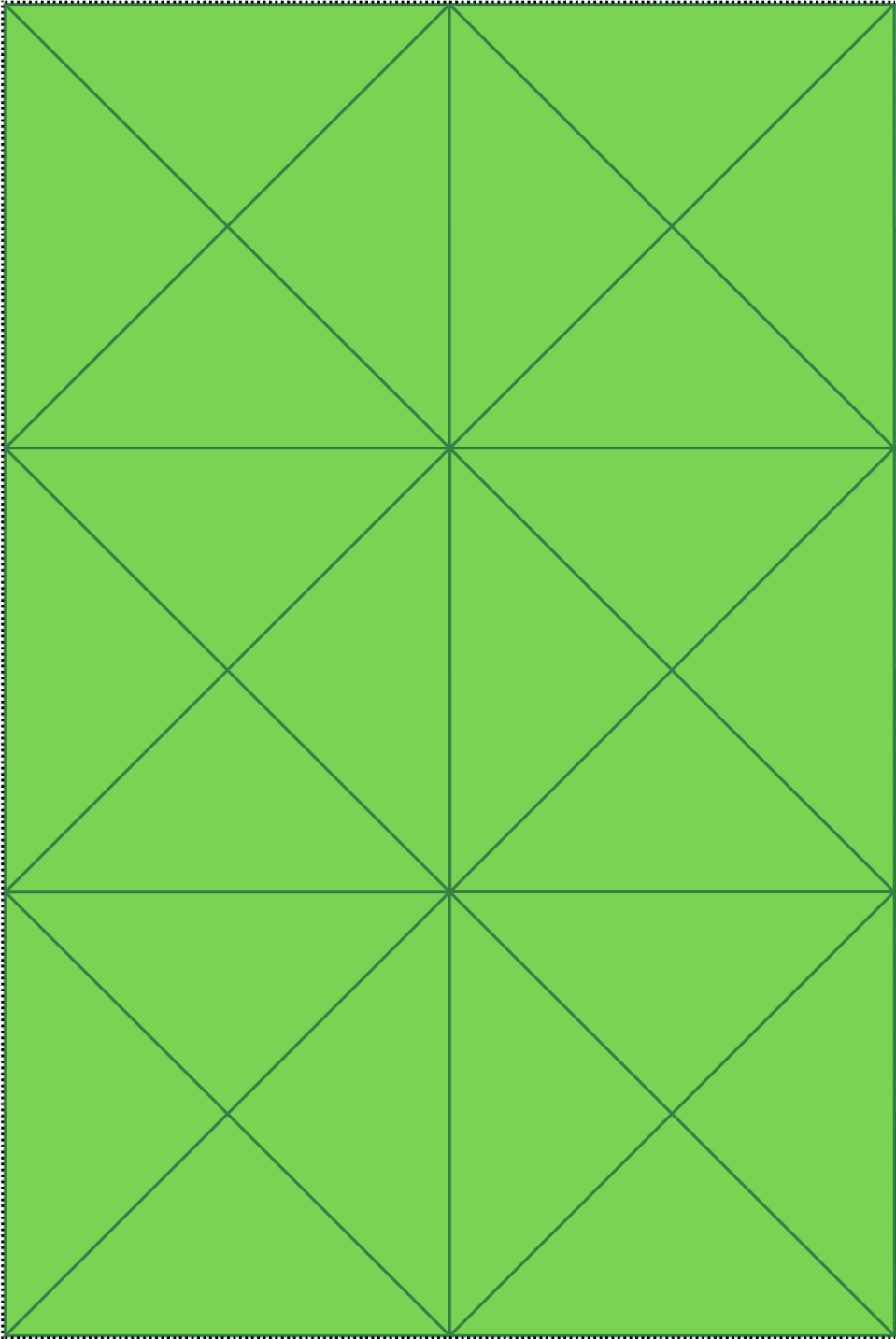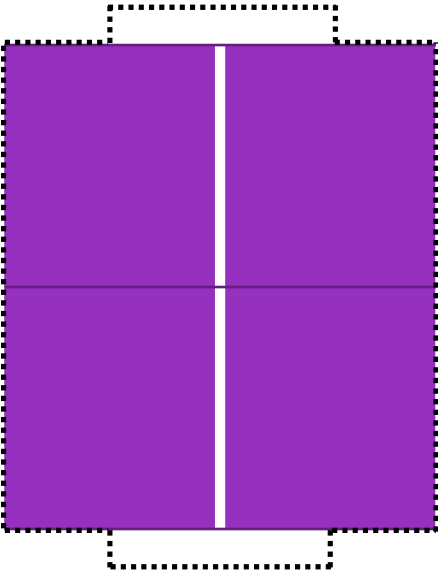
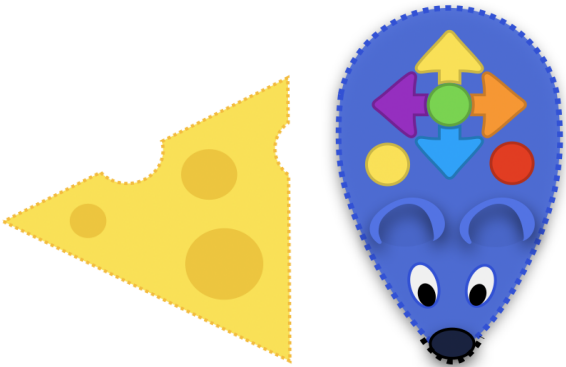**Map A Tunnel**

Mouse & Cheese
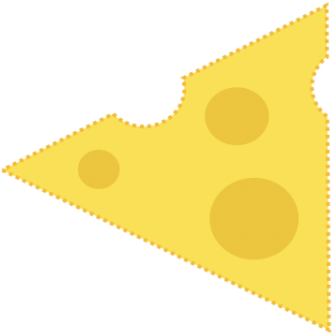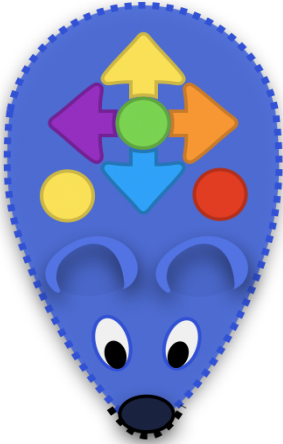
Map Card B
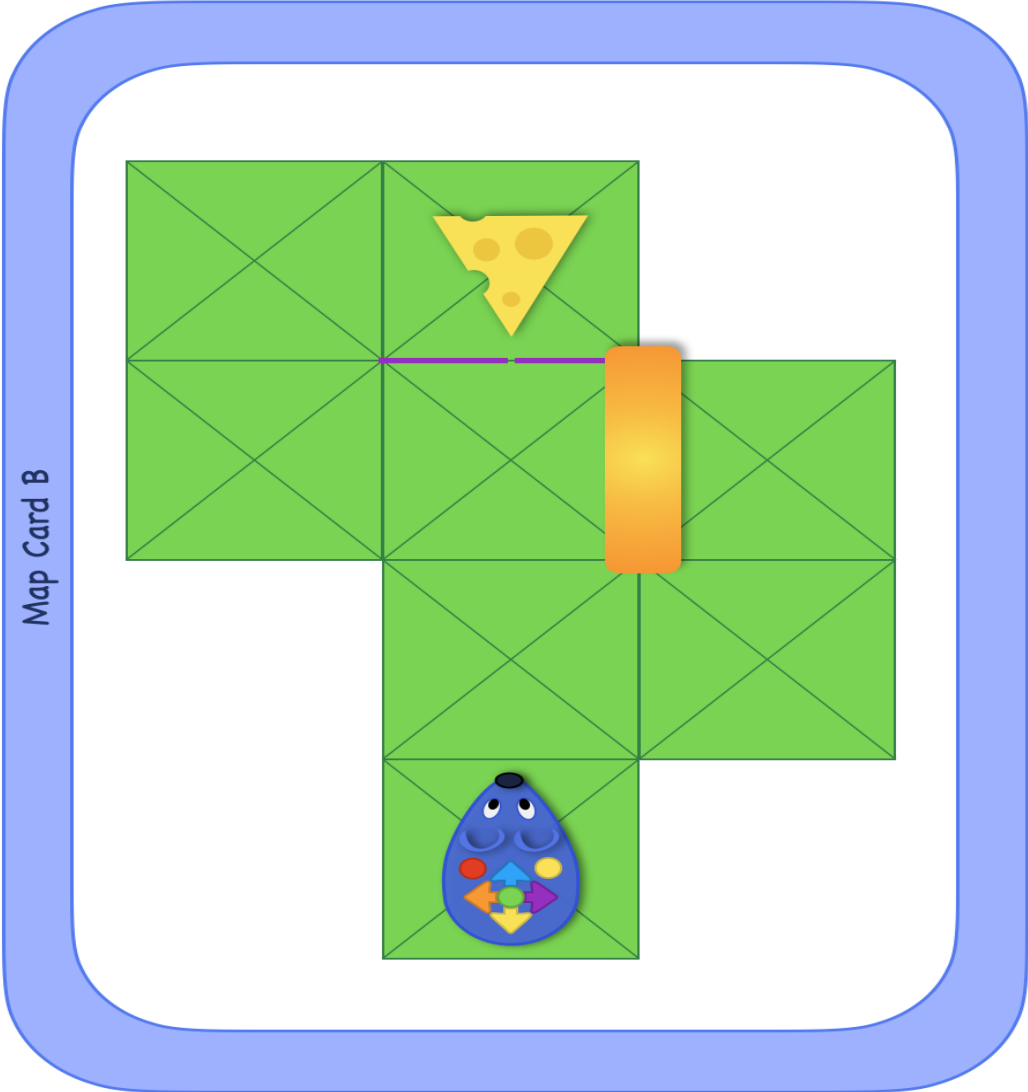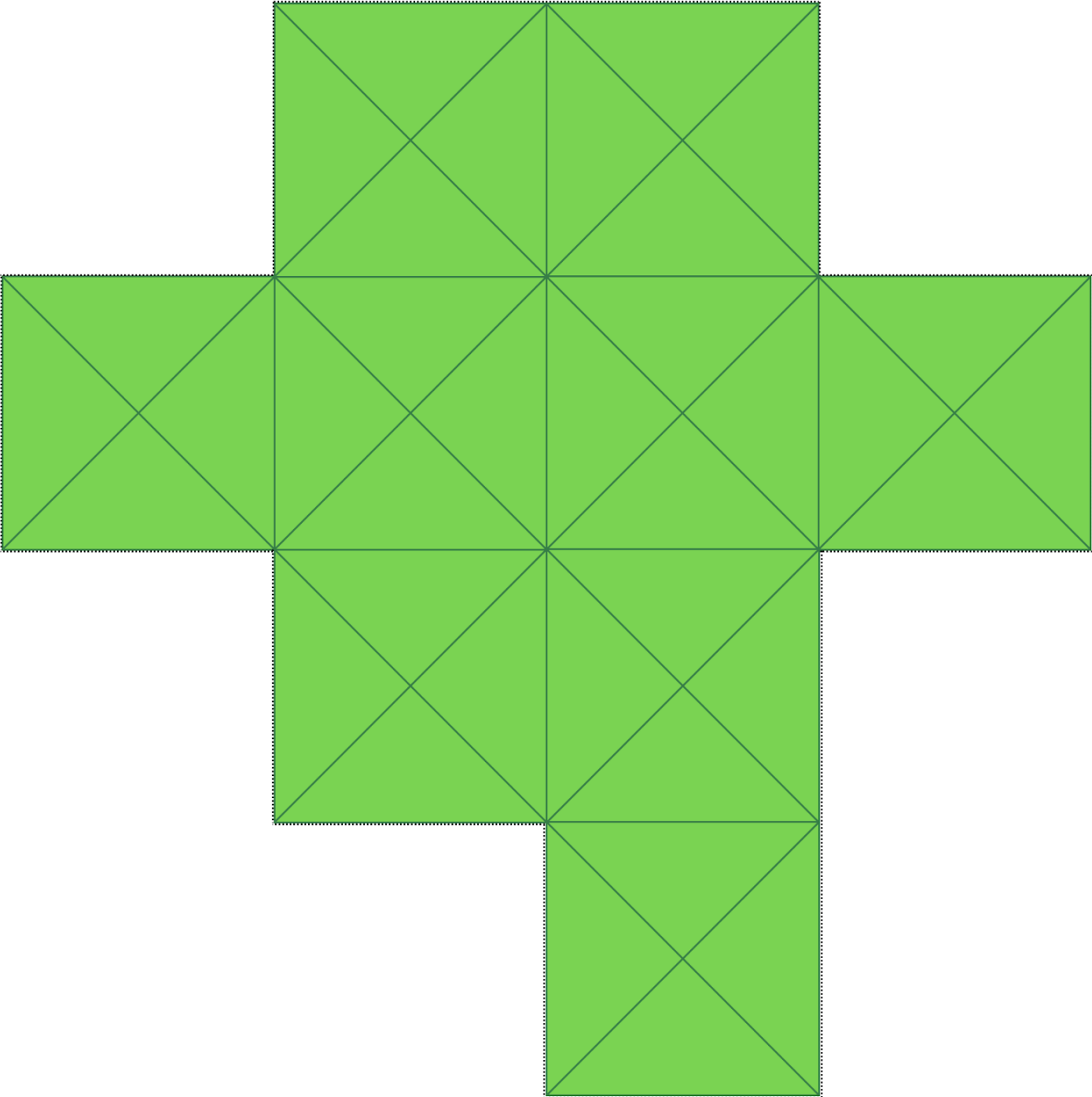
Map B game board
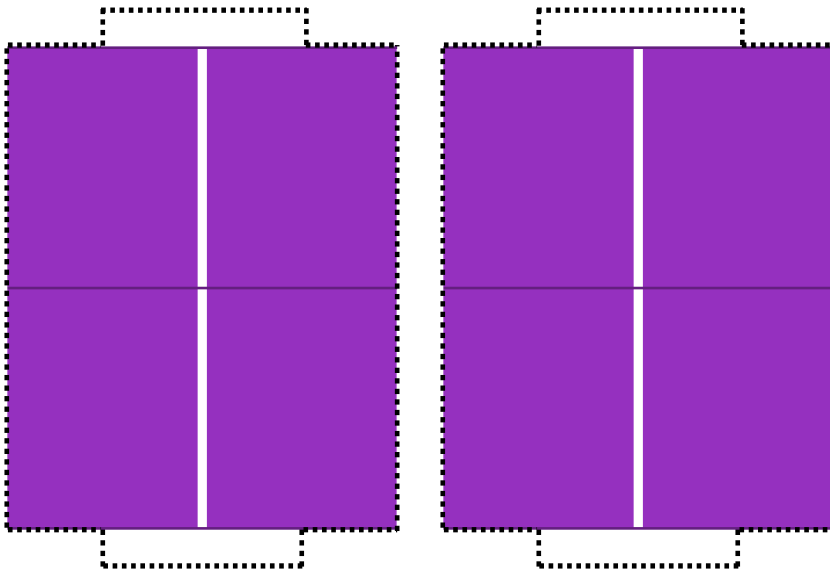
Map B Tunnel
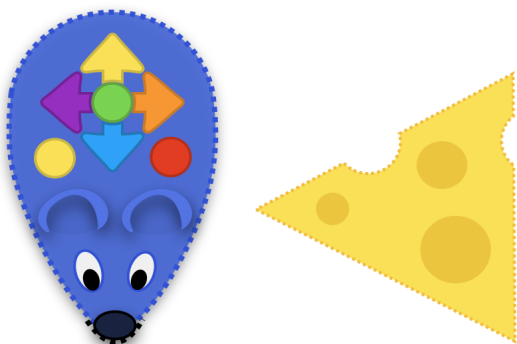
Map B wall

Cheese & mouse

Map C

Map Card C
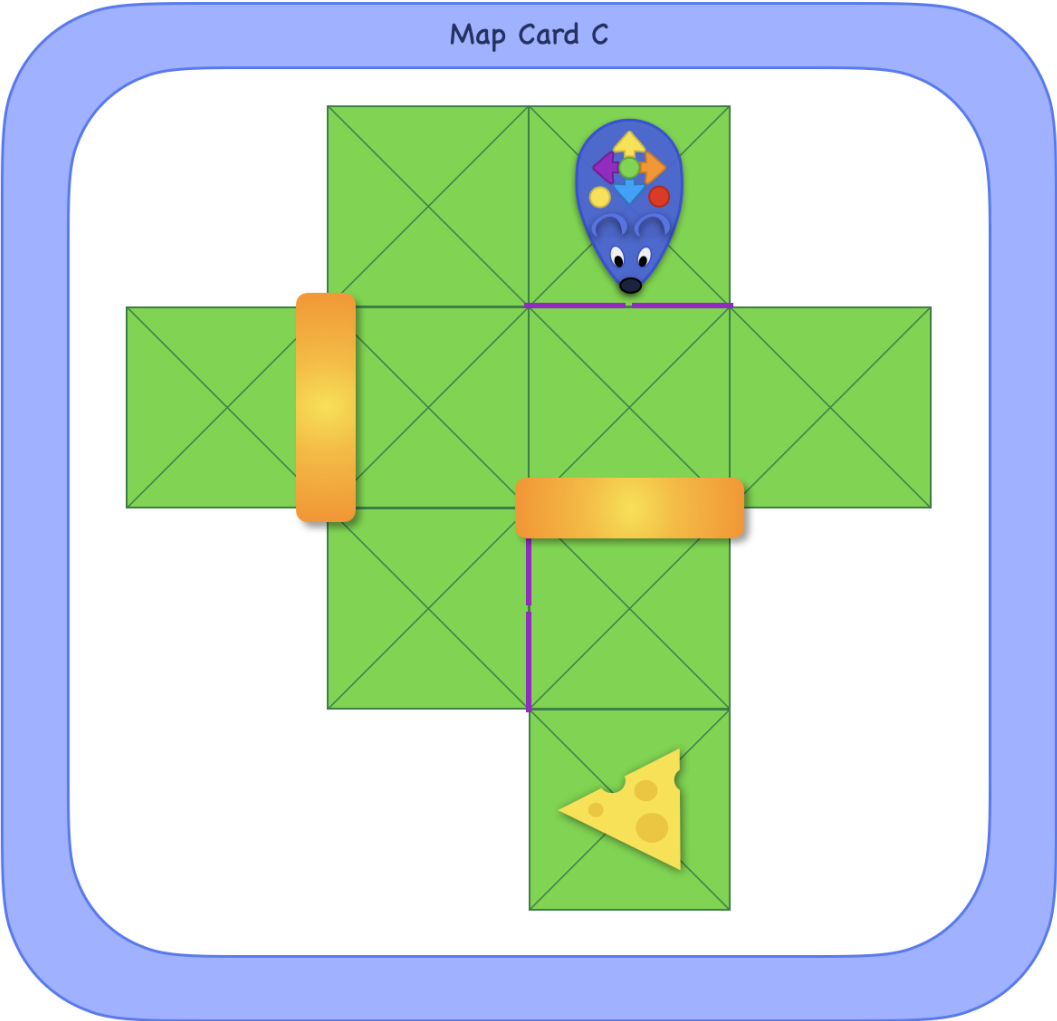
Map C game board

Map C Tunnels (total 2)

Map C Walls (total 2)

Mouse & Cheese

Sequencing with Multiple Logic Paths:
Robot Mouse Obstacles (Embodied ver.)

ReCT
Rethinking Circle Time

Lesson Summary	Three versions (unplugged, embodied, CT toy) with three different course options - randomize the order of the version and use a different course (map A, map B, map C) for each version. In this **Embodied version** lesson, students work on creating multiple logic paths to avoid obstacles. Students wear a mouse placard (or hairband with mouse ears) and step on green blocks. Students act as the mouse to get the cheese following a previously determined green block map requiring they pass all of the tunnels.
Grade Level	K-2
Subjects Addressed	**Computational Thinking:** *Algorithms & Procedures:* Forwarding and reverse sequence. *Debugging:* Finding and fixing errors in their code (the sequence of arrows). **Literacy:** *Vocabulary and comprehension:* Developing an understanding of the reading by discussing the story with classmates and the teacher. Build up new words to their vocabulary through the story.
Standards	● CCSS-ELA: 　○ Literacy.SL - 1.1, 1.2, 1.3, 1.4 　○ Literacy.RL - 1.3, 1.7, 1.9 ● CSTA: 1A-DA-06, 1A-AP-09, 1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14
Learning Objectives	Students will be able to: ● **Computational Thinking:** 　○ *Algorithms & Procedures:* Create a sequence of steps using coding cards to solve a given problem 　○ *Data Representation*: Represent their sequence through coding cards 　○ *Debugging*: Revise their coding identifying and fixing mistakes ● **Literacy:** 　○ *Reading Comprehension*: Connect ideas in the story applying and extending these ideas to the coding problem. Students will answer questions about the guided reading and make predictions about the story. 　○ *Vocabulary:* Understand and acquire new words to their vocabulary.
Teacher Background and Content Information	● **Sequencing:** Sequencing is a part of the idea of algorithms. Algorithms are step-by-step, ordered procedures to accomplish a task. Students must learn how to create directions using coding cards first so students can move following them and produce the intended result.

	Debugging: When students code the directions, it might not work as expected because of mistakes they might have made when planning the directions. The process of identifying and fixing errors in the code is known as debugging. They will need to engage in debugging all the time throughout the activity by revisiting their plan and making changes. - The order that students are required to pass all of the tunnels before they can get to the cheese matters, but the order in which tunnels students pass first or which directions students choose does not matter. - Note whether or not students understand the order that does matter (requirement to hit all of the obstacles before they can reach the cheese) - While administering any of these activities, it is important to keep an eye out for students understanding of sequence ordering - Observe and document student planning, coding, and debugging through notes and pictures. - Note how students utilize the coding cards, map, and course to determine the order they choose
Differentiate/ Inclusion	- Small Group Work: This activity also can be done with a small group setting. Students can take different roles, such as Navigator (who plans the sequence using direction cards and read it to the driver), Designer (who helps the navigator and record how many tries it takes to succeed), Driver (who carries out the plan), and Debugger (who points to each step in the plan as the driver moves and solves the problem). - The number of tunnels & Walls: To add more challenges, students can have more tunnels and walls on the board. - Reverse task: To add more challenges, provide reverse options to students and have them bring the cheese back to the start point.
Materials	A game-board, tunnel(s), wall (Map B & C), 1 mouse placard, yarn, 1 cheese, direction cards, tape and velcro if needed. - Print and cut out 1 student mouse placard then tie yarn to two corners of the mouse card for a student to wear - Alternatively students can wear the mouse ears secured to a headband using the mouse ears, however, because these will go in their hair each student will need their own headband - Just print and cut out the mouse ears then fold and tape the tabs under a headband - If you are unable to get plastic headbands for each student the ears can be taped to a strip of paper and stapled into the shape of a ring for the students to wear around their heads - Print and cut out green blocks - Print and cut out cheese slice - Create tunnel(s) - Possibly set up two desks to represent the base of the tunnel on either side of a green block space and connect the top of the desks with cardboard,

paper, or fabric (preferably orange to represent the tunnels in the robot mouse game)
- ○ Two other students could stand facing each other on either side of a green block space with their hands touching to represent a tunnel
- (Map B & C) Create wall(s)
  - ○ Fold in half then fold up the flaps so the wall can stand between the green blocks as shown in map image B or C
  - ○ Flaps can be taped under the edges of the green blocks for added security
- Set up the green blocks, cheese, and tunnels to represent map card
- Print and cut out Map Card (A,B,C)

Overall Description

Launch/ Engage	1. Read the book **"Little mouse's big breakfast"** *Say: Before we begin our activity today, I am going to read this book. Can you read the title? What can you see on the cover? Can you imagine the story?* After reading the book, ask some questions about the paths the mouse went through and help students focus on the sequence. *Say: What happened to the mouse? Where did he want to go? How to get there?* *Scampered along the path / up up up the drainpipe / finally little mouse hopped through an open window…* This book will prepare students to know the meaning of the sequence. Bring the conversation about the pathway that the mouse went through.
Explore	1. **Introduce the activity** *Ask: What kinds of materials can you see here? Can you think about what we will do with these?* Say: *Today we are going to play a game with the pieces you see in front of you. You are going to be the mouse and your goal is to come up with a plan that helps you find the cheese.* Point to the direction cards and say: *These are direction cards that will help you think and plan out the directions to go to get cheese. First, **think** in your head and **show** what you think using these cards, and you are going to **walk over** the green squares to get the cheese following the plan.* Point to the tunnel(s) (and wall for Map B & C) and ask: *What is this for?* This question helps students understand and remember the rule. Say: *The most important rule is that you have to make sure your mouse uses all of the tunnels before it can reach the cheese.* • If you choose Map C, emphasize them there are two tunnels that they need to pass, but the order in which tunnels students pass first or which directions students choose does not matter. Ask: *Are you ready to make a plan for the mouse to get cheese? Do you have any questions?* 2. (Optional) **Clarify the rules**. Demonstrate how this activity works with a student volunteer. Say: *Let's plan and carry out this together first. Who wants to help me play this game?*

Show how to plan with direction cards and how to make steps following the plan. This modeling helps students to understand the rules clearly. If a volunteer student does not pass the tunnel/follow the plan/get the cheese, talk about the problem and how to solve it with other students.

Ask: *Is there anything that we need to revise our plan?*

Say: *The mouse can only move following what you ask to do. If you give a wrong direction, the mouse won't be able to get cheese, but you can always revise your directions and fix it, so do not worry. You can plan out whatever makes sense to you, following the rules we just talked about.*

3. **Planning with direction cards**

   Say: *Okay, it's your turn to start planning the way to move to get to the cheese!! You can use the direction cards to come up with your path but remember you have to use the tunnel(s) before it can get the cheese.*

4. **Carrying out the plan and Debugging**

   When the students are done laying out their plan, show them the full-size of game board. Make sure students stand in the same orientation as shown for the mouse on the corresponding map card.

   Say: *It's time to test out your directions to see if the mouse can get to the cheese!*

   Ask the following questions based on student actions:
   - If students don't go through all of the tunnels say: *You did a good job but I noticed that you didn't go through all of the tunnels before you reached the cheese. Let's try again and follow all of the rules this time*
   - Note if the ways in which students talk about or approach the task change from the map card version to the physical game board
     - If students don't utilize their previous plan say: *You did a good job but I noticed you didn't follow all of the directions from your plan.*
     - Ask: *Why did you decide to do something different from your plan?*
   - Note the path students take and ask questions to understand why students went through tunnels in the order they chose as well as the directions they chose to take
     - If student zigzagged all over the board or used minimal space ask them why they made those choices
     - Ask: *Can you tell me why you chose to go this way?*

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1. **Wrap-up**

   Say: *Today, we made a nice plan with direction cards and found a way to get to cheese. We all did a great job!*

   Ask questions to find out how students used the tools to make decisions when planning and executing the task. *Ask: What kinds of tools did we use today? How did it help to complete this activity?* (e.g. direction cards)

   Share students' experiences on the activity, Ask: *Anyone who wants to share how it was? What were your favorite parts? Any challenges you had?*

   If students could not complete the activity or had issue with coding, share the photos taken during the activity, and help them solve the problem together. Ask:

Summarize/ Explain

|	Anyone who wants to share what happened in this photo? How can we help solve this problem? If there are students who needed more time to complete the task, let them know there would be a different version of the mouse game next.
Apply/ Extend	1. New obstacles: Have students create their own board game by adding more tunnels/walls or other obstacles (e.g., cat, house) 2. The Shortest & Longest way: By counting how many directions cards students used, check who went through the shortest way or the longest way. This activity can be integrated with arithmetic.

Teacher Notes
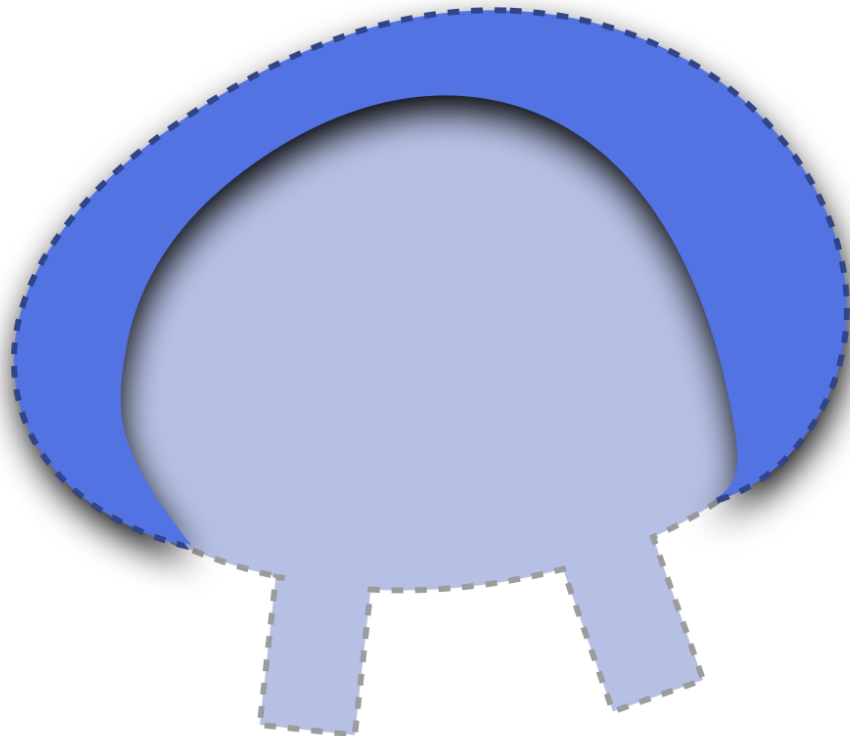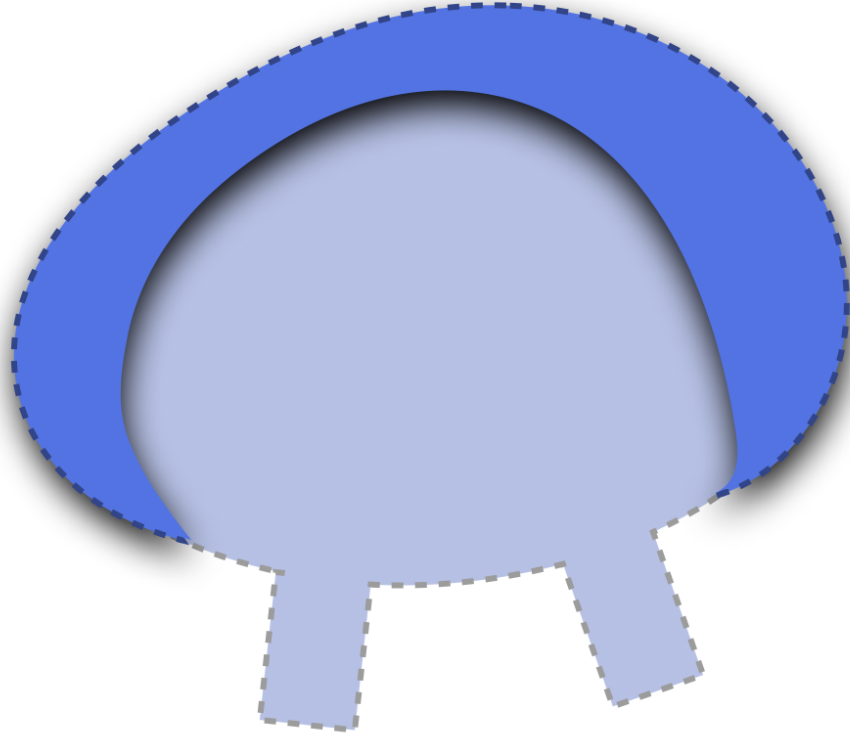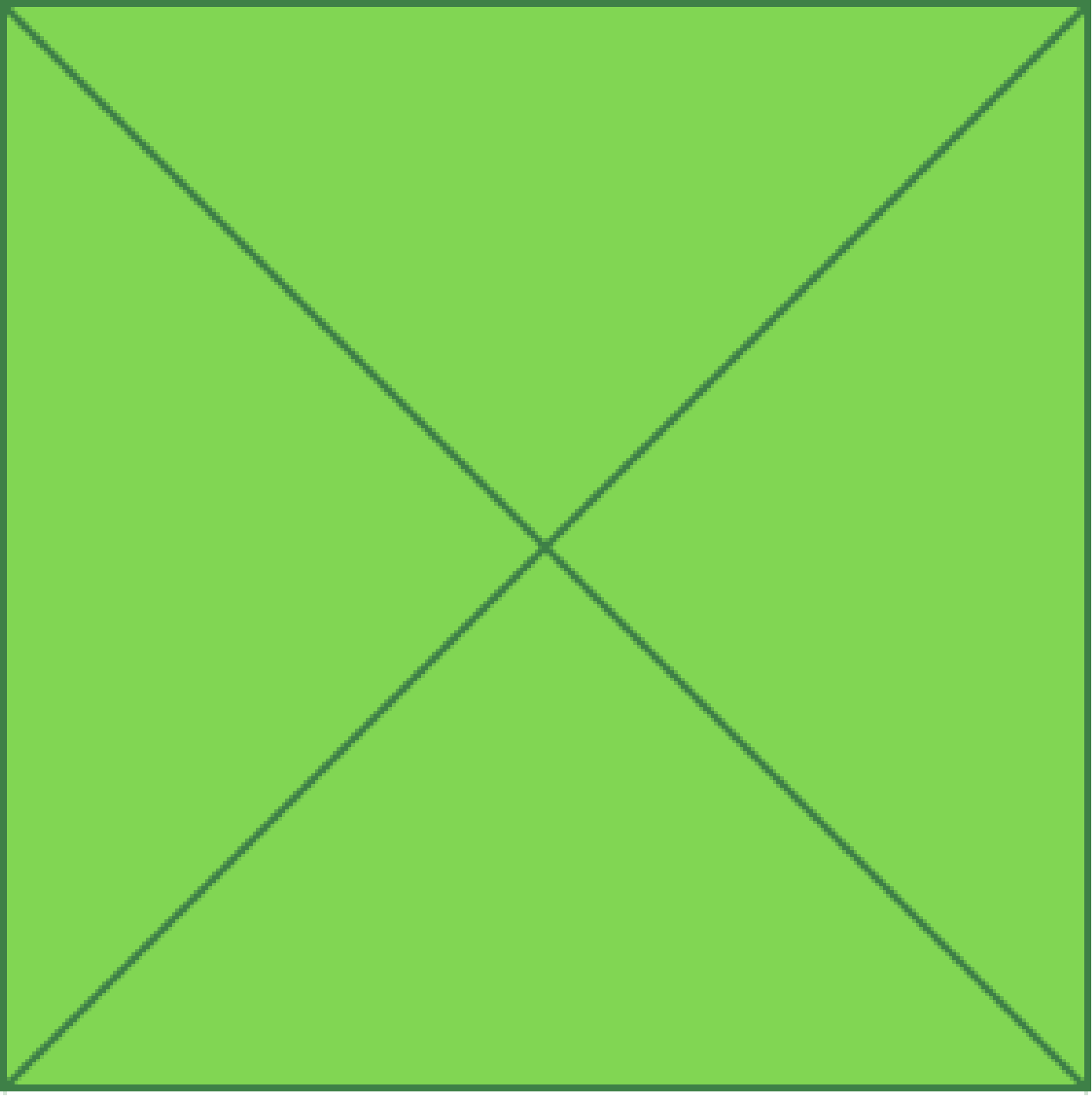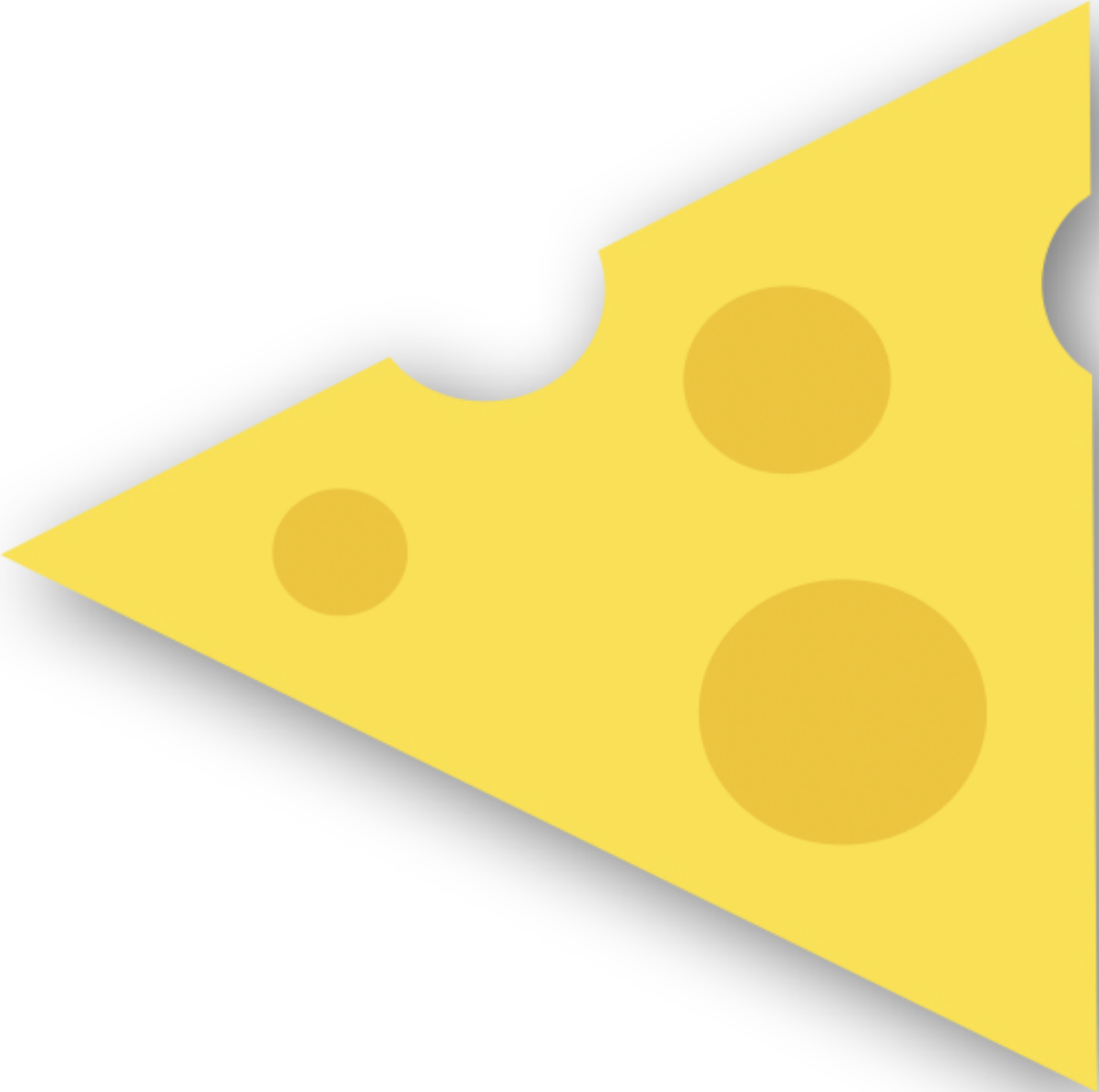
1. Mouse placard
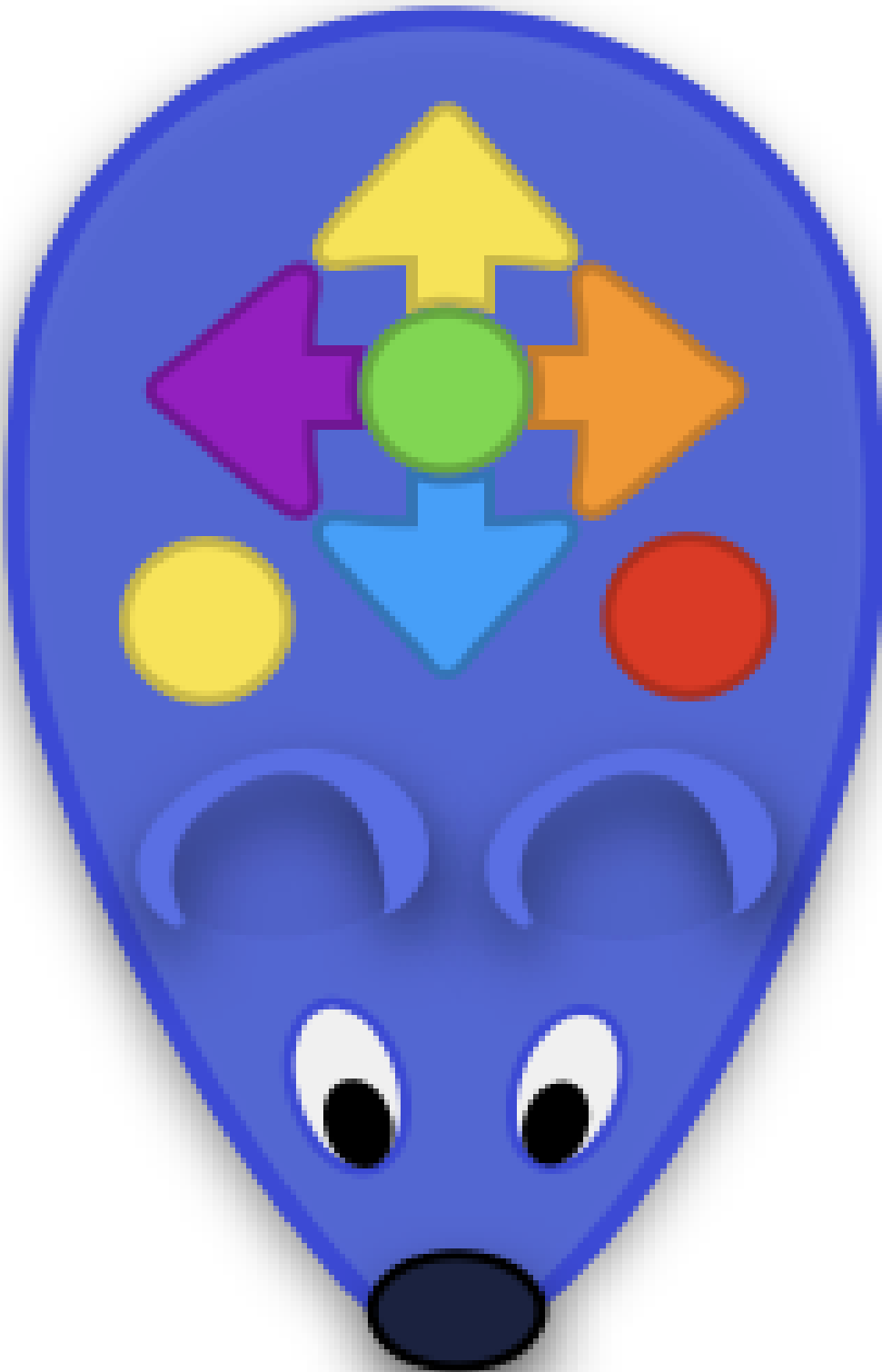
2. (Optional) Mouse ears (Hairband needed)
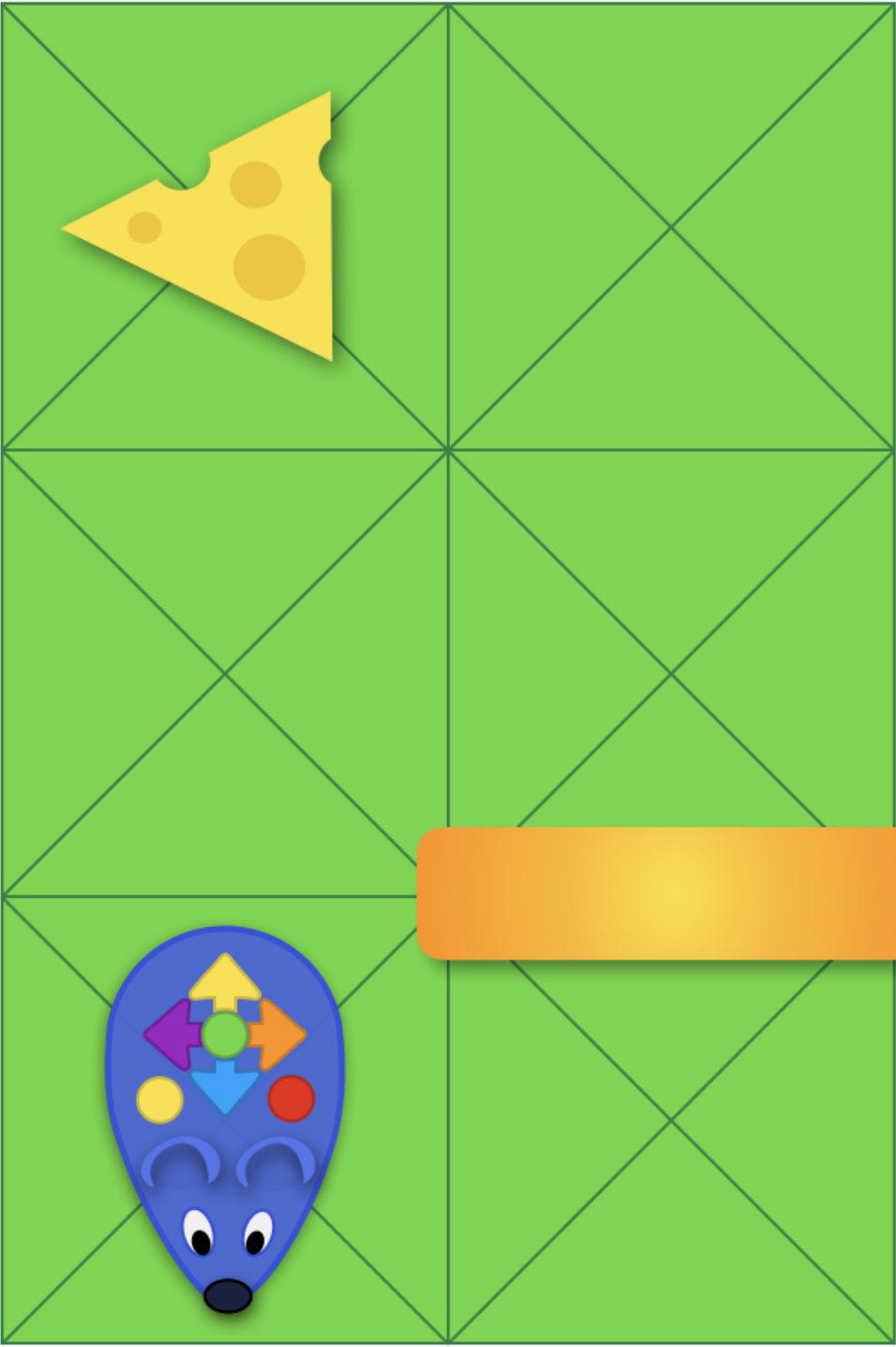
3. Green Block (Map) *Check the map image to see how many blocks needed
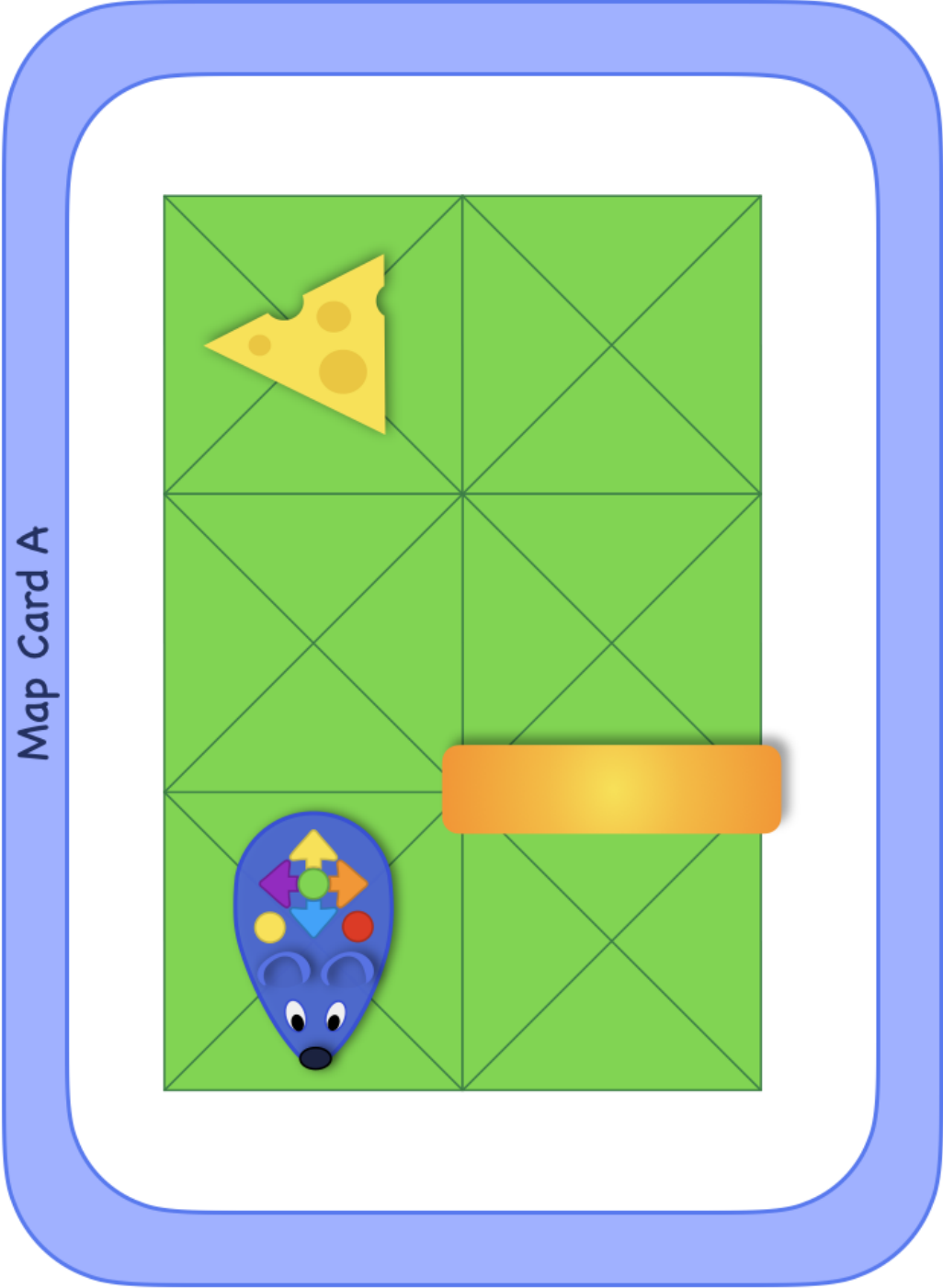
4.   Cheese slice

5. Map Image A
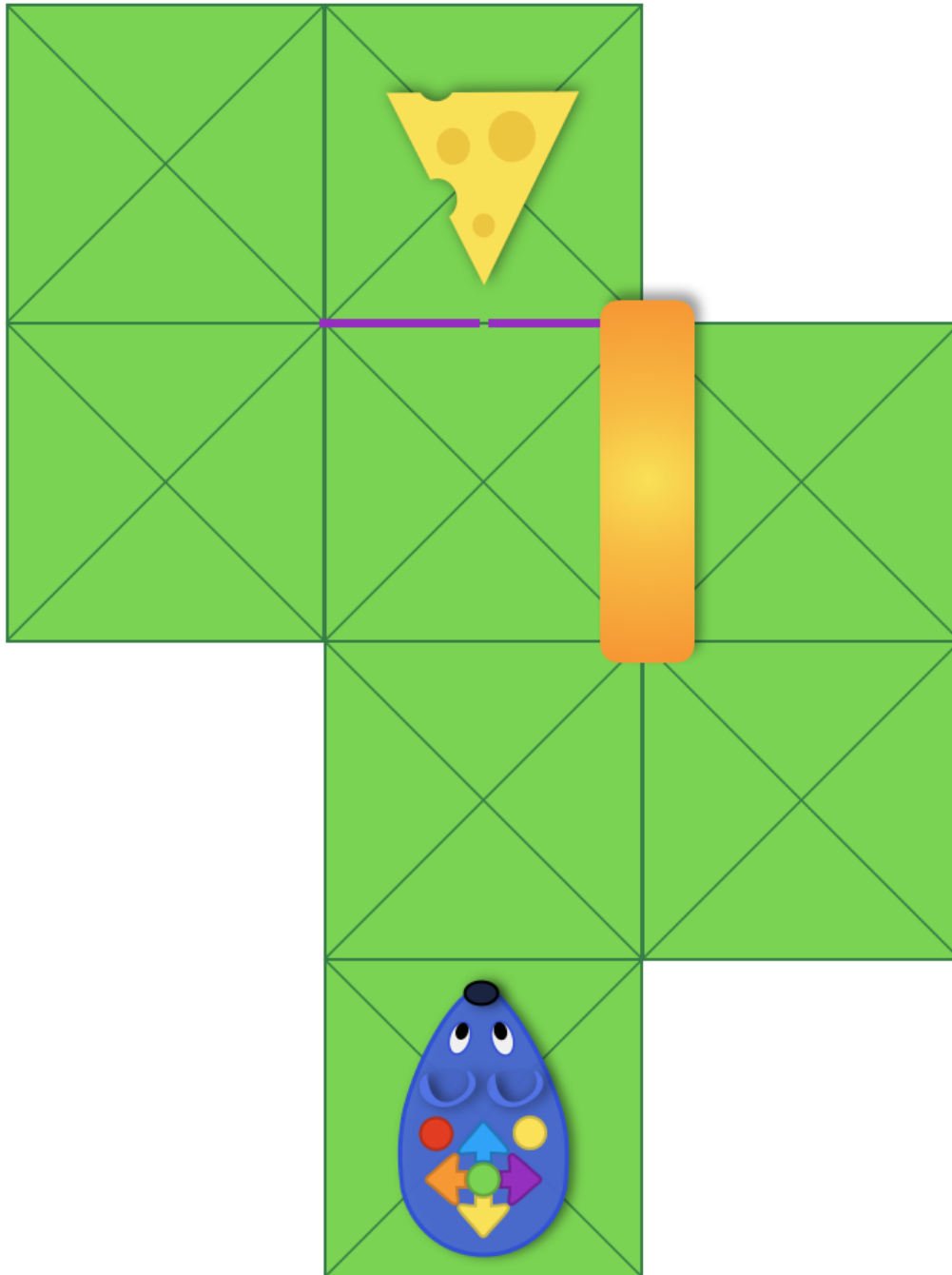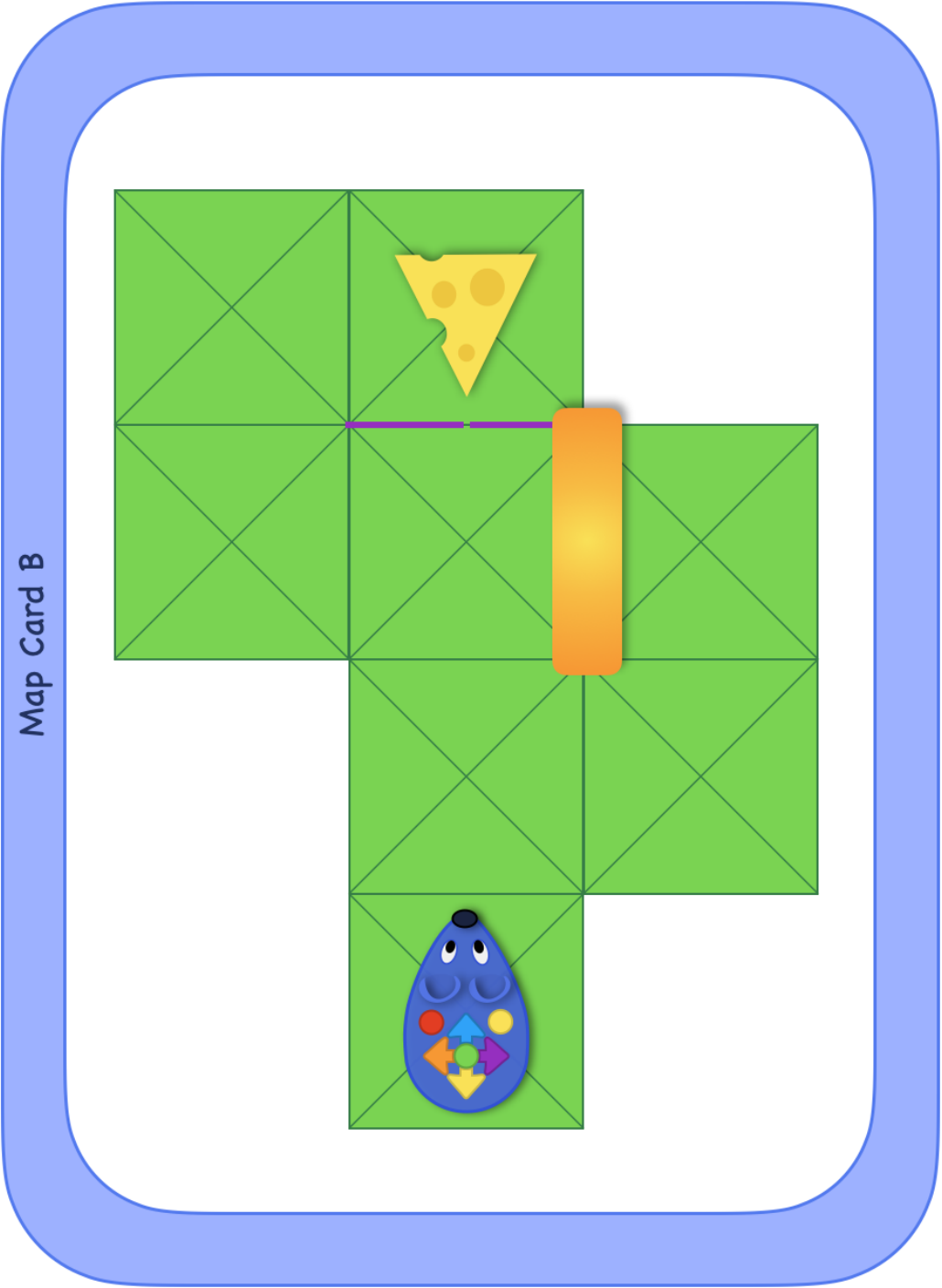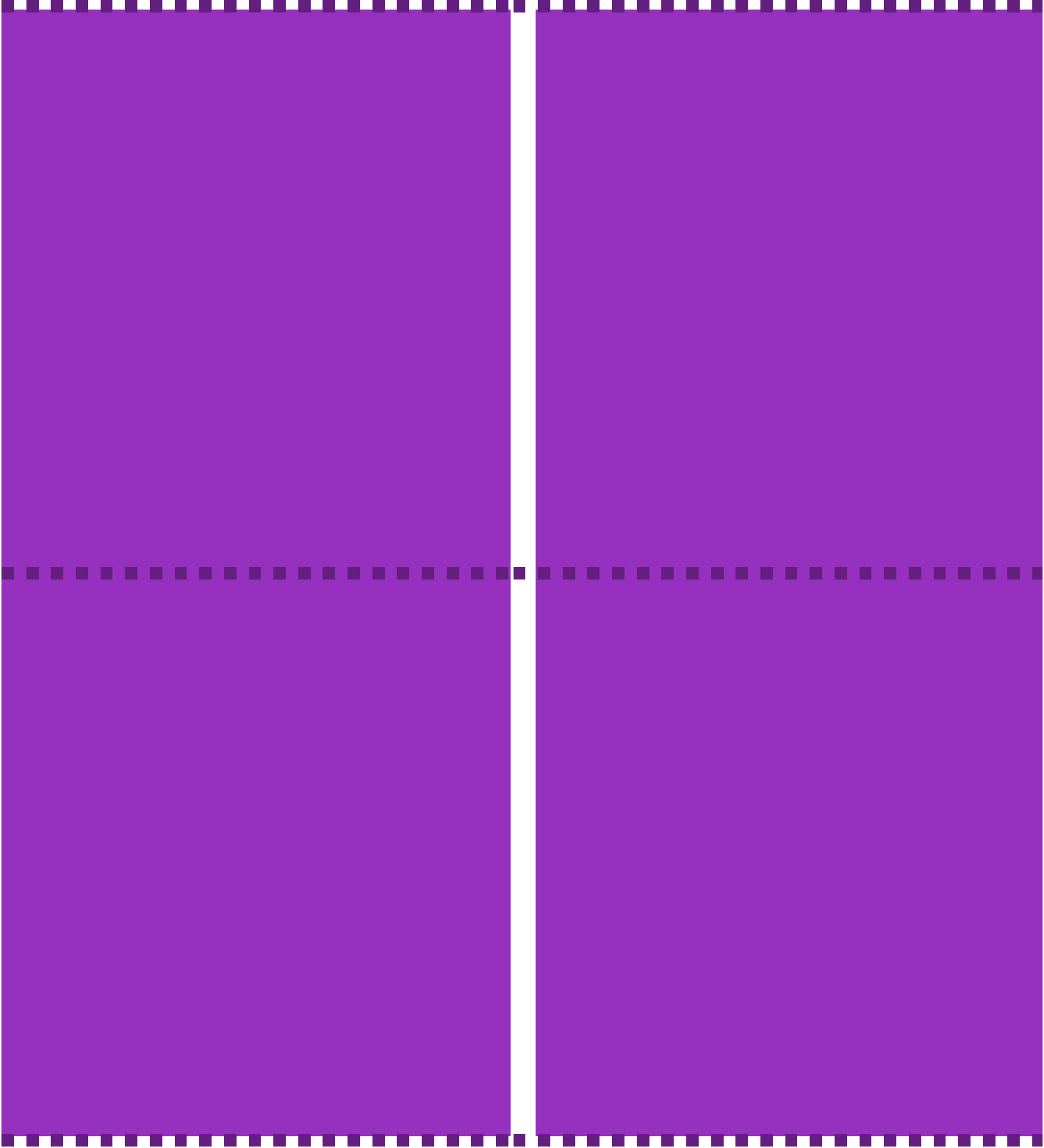
6. Map Card A

Map Card A

7. Map image B

8. Map Card B
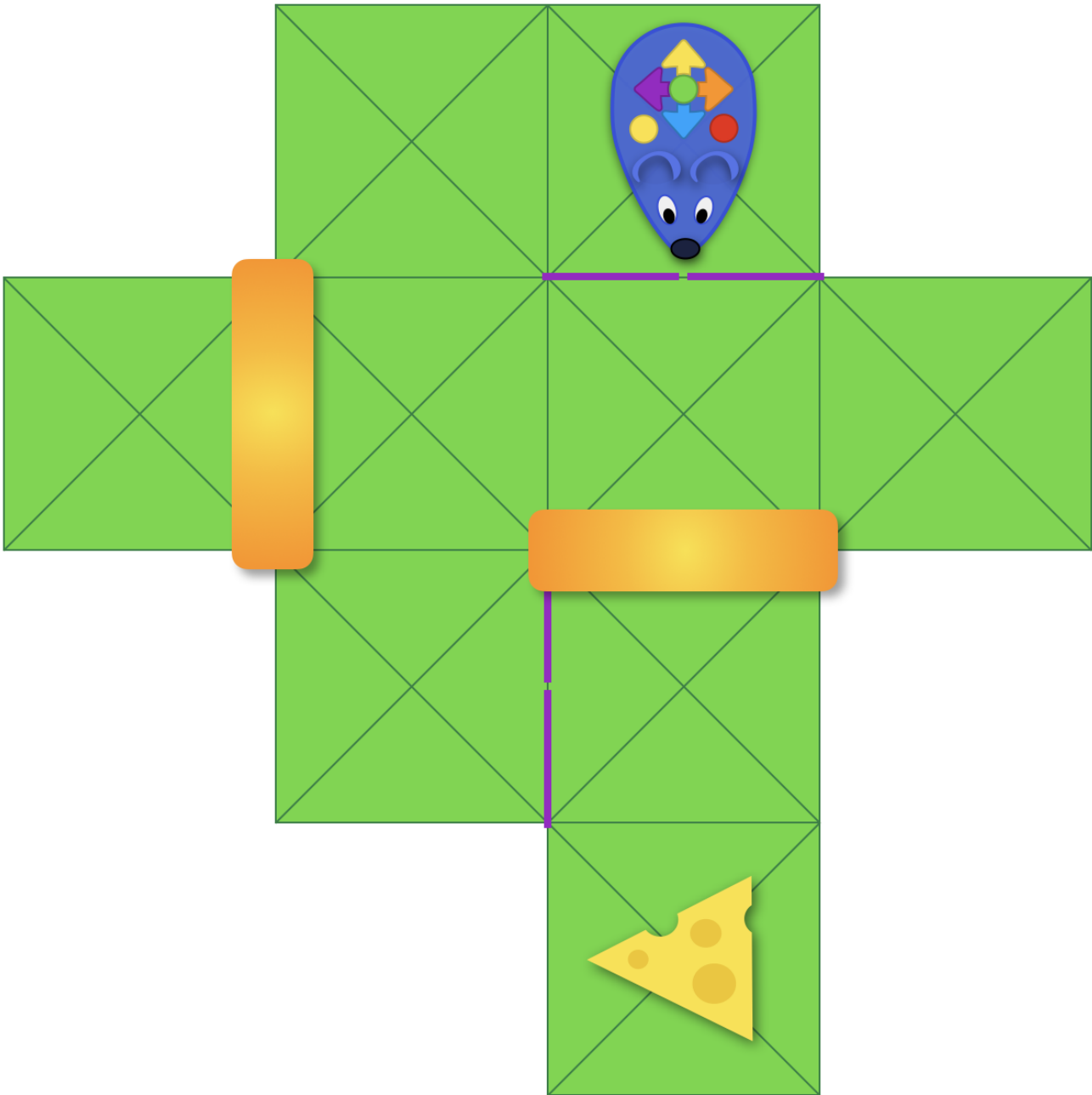

Map Card B

9. Wall (Map B & C) *Check the map image to see how many walls needed

10. Map Image C

11. Map Card C

Map Card C

Lesson Summary	Three versions (unplugged, embodied, CT toy) with three different course options - randomize the order of the version and use a different course (map A, map B, map C) for each version. In this **CT toy version** lesson, students work on creating multiple logic paths to avoid obstacles. Students will be given the map and direction cards so they can choose how to code the push-button mouse robot and then test on a previously determined map requiring they go through all of the tunnels.
Grade Level	K-2
Subjects Addressed	**Computational Thinking:** *Algorithms & Procedures:* Forwarding and reverse sequence. *Debugging:* Finding and fixing errors in their code (the sequence of arrows).
Standards	● CSTA: 1A-DA-06, 1A-AP-08, 1A-AP-09, 1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14
Learning Objectives	Students will be able to: ● **Computational Thinking:** ○ *Algorithms & Procedures:* Create a sequence of steps using coding cards to solve a given problem ○ *Data Representation:* Represent their sequence through coding cards ○ *Debugging:* Revise their coding identifying and fixing mistakes
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	○ Observe and document student planning, coding, and debugging through notes and pictures. ○ Note how students utilize the coding cards, map, and course to determine the order they choose.

Differentiate/ Inclusion	● Small Group Work: This activity also can be done with a small group setting. Students can take different roles, such as Navigator (who plans the sequence using direction cards and read it to the driver), Designer (who helps the navigator and record how many tries it takes to succeed), Driver (who presses the button following navigator's plan), and Debugger (who points to each step in the plan as the mouse move and solve the problem).
	● The number of tunnels & walls: To add more challenges, students can have more tunnels and walls on the board. Or you can assign the map based on grade level.
	    ○ Kindergarten - Map A (1 tunnel)
	    ○ 1st grade - Map B (1 tunnel & 1 wall)
	    ○ 2nd grade - Map C (2 tunnels & 2 walls)
	● Reverse task: To add more challenges, provide reverse options to students and have them bring the cheese back to the start point.

Materials	Robot mouse kit (robot mouse, cheese, coding cards, green interlocking map squares, purple wall dividers, and orange bridge) ● Prepare robot mouse kit ● Print and cut out one copy of the map card chosen for this version: Map A, Map B, Map C ● Print and cut out direction cards if more are needed

Overall Description

Launch/ Engage	1. **Set a puzzle "What is this one?"**
	This activity will prepare students to get familiar with using a robot mouse.
	Say: *Today, I invite a special robot into our classroom. Let's guess what it is.*
	Ask: *How does it look like?* (Pointing buttons) *What are these for? How many buttons does this robot have? Can you guess what is this for?*
	Students will predict how to use a robot mouse and share their thoughts.
	Say: *I am going to give this robot to you, and you are going to explore how to use these robots. Check whether what we all guessed is correct or not, if there is something different than you thought, let's talk about this again when we come back here.*
	Is there anything that we should be careful about while we observe robots?
	    ● Set a specific length of time for exploration
	    ● If students need to share robots, remind them how to share and observe the robots with others
	2. **Explore robot mouse and discuss what they discovered**
	Ask: *Is there anyone who wants to share what you found?*
	Give enough time for students to share what they have discovered. Demonstrate how to use the mouse robot if needed.
	Ask: *What happened when you clicked this button?*
	This question will help students understand how to use the button such as the reset

|	
	and go button.
Explore	1. **Introduce the activity** *Ask: What kinds of materials can you see here? Can you think about what we will do with these?* *Say: You are going to get to have this robot mouse, and we are going to make steps for the mouse to get the cheese.* *Point to the direction cards and say: These are direction cards that will help you think and plan out the directions to go to get cheese.* *Ask: (Showing the direction cards) Have we ever seen these arrows? Let's guess where are these from.* Let them know that the color of the arrow on the direction cards is the same with the color of the button of robot mouse. It helps students code easier. Point to the tunnel(s) (and wall for Map B & C) and ask: *What is this for?* This question helps students understand and remember the rule. Say: *The most important rule is that you have to make sure your mouse uses all of the tunnels before it can reach the cheese.* ● If you choose Map C, emphasize them there are two tunnels that they need to pass, but the order in which tunnels students pass first or which directions students choose does not matter. Ask: *Are you ready to make a plan for the mouse to get cheese? Do you have any questions?* 2. (Optional) **Clarify the rules**. Demonstrate how this activity works with a student volunteer. Say: *Let's plan and carry out this together first. Who wants to help me play this game?* Show how to plan with direction cards and how to code robot mouse following the plan. This modeling helps students to understand the rules clearly. If a volunteer student does not pass the tunnel/follow the plan/get the cheese, talk about the problem and how to solve it with other students. Ask: *Is there anything that we need to correct our plan?* Say: *The mouse can only move following what you ask to do. If you give a wrong direction, the mouse won't be able to get cheese, but you can always revise your directions and fix it, so do not worry. You can plan out whatever makes sense to you, following the rules we just talked about.* 3. **Planning with direction cards** Say: *Okay, it's your turn to start planning the way the mouse to get to the cheese!! You can use the direction cards to come up with your path but remember the mouse has to use the tunnel(s) before it can get the cheese.* 4. **Carrying out the plan and Debugging** When the students are done laying out their plan for the mouse piece, bring out the map and coding robots and make sure students place the mouse robot in the same orientation as shown on the corresponding map card (page 5-9). Say: *It's time to test out your directions to see if the robot mouse can get to the cheese!*

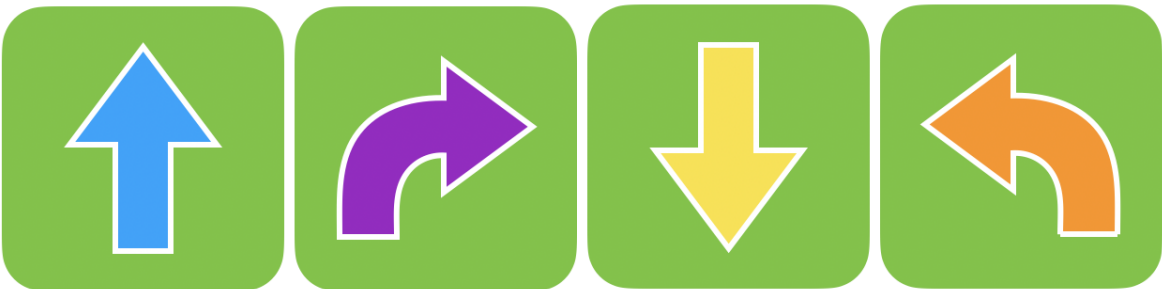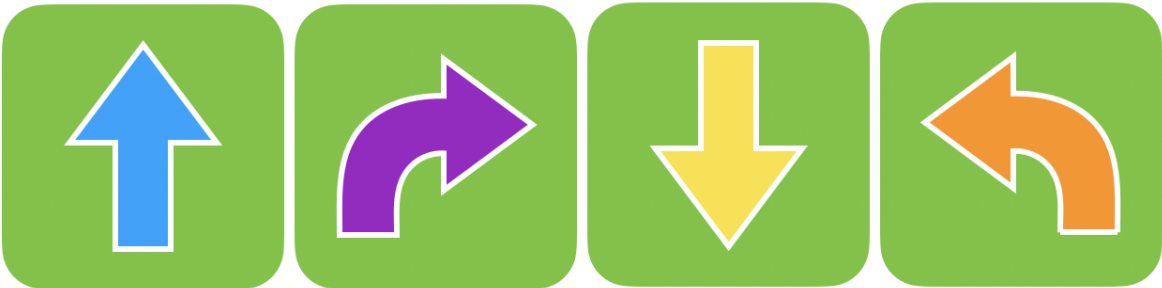|	
	Ask the following questions based on student actions: - If students don't go through all of the tunnel(s) say: *You did a good job but I noticed that the mouse didn't go through all of the tunnels before it reached the cheese. Let's try again and follow all of the rules this time* - Note if the ways in which students talk about or approach the task change from the map card version to the physical game board - If students zigzagged all over the board or used minimal space ask them why they made those choices Ask: *Can you tell me why you chose to go this way?* Note the path students take and ask questions to understand why students went through tunnels in the order they chose as well as the directions they chose to take.
Summarize/ Explain	**5. Wrap-up** Say: *Today, we made a nice plan with direction cards and helped mouse get a cheese. We all did a great job!* Ask questions to find out how students used the tools to make decisions when planning and executing the task. *Ask: What kinds of tools did we use today? How did it help to complete this activity?* (e.g. direction cards) Share students' experiences on the activity, Ask: *Anyone who wants to share how it was? What were your favorite parts? Any challenges you had?* If students could not complete the activity or had issue with coding, share the photos taken during the activity, and help them solve the problem together. Ask: *Anyone who wants to explain what happened in this picture? How can we solve this problem?* If there are students who needed more time to complete the task, let them know there would be a different version of the mouse game next.
Apply/ Extend	- New obstacles: By adding more tunnels/walls or other obstacles (e.g., cat, house), have students create their own game. - Create their own map: By adding or taking off some more green map, have students create their own map. - The Shortest & Longest way: By counting how many directions cards students used, check who went through the shortest way or longest way. This activity can be integrated with arithmetic.

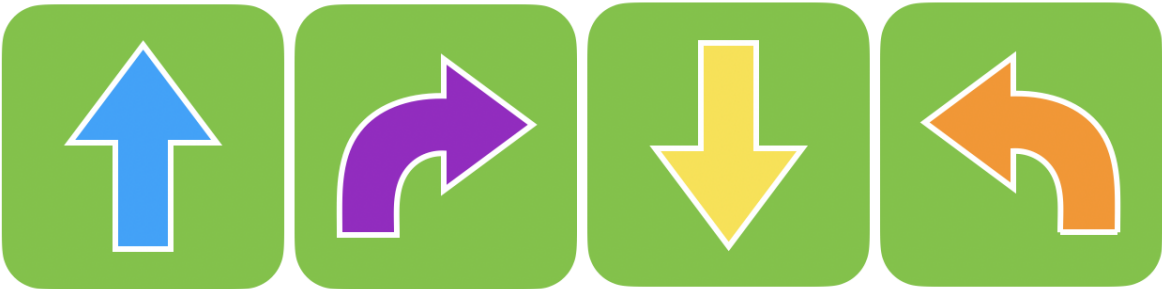**Teacher Notes**

Map Card A
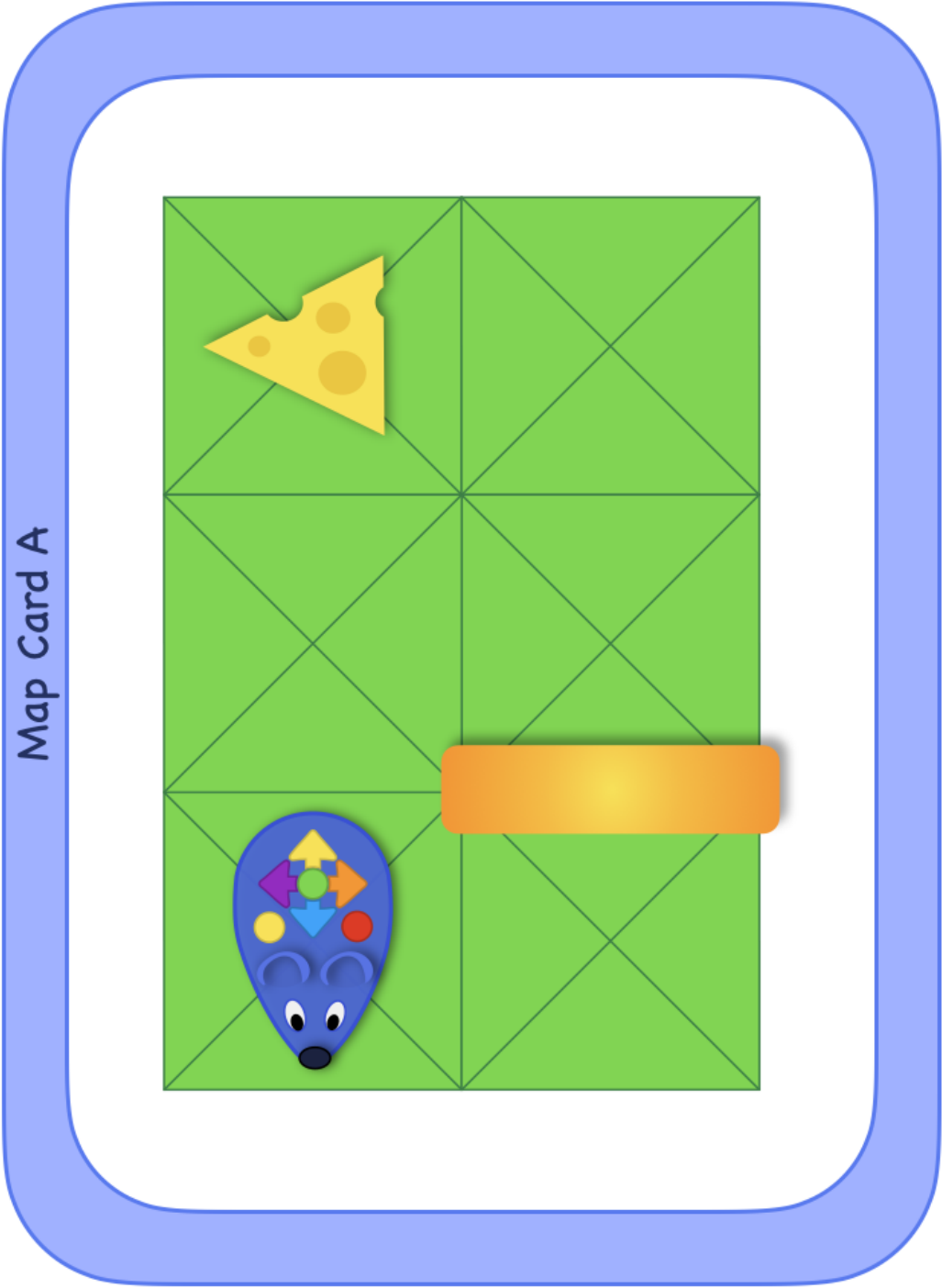
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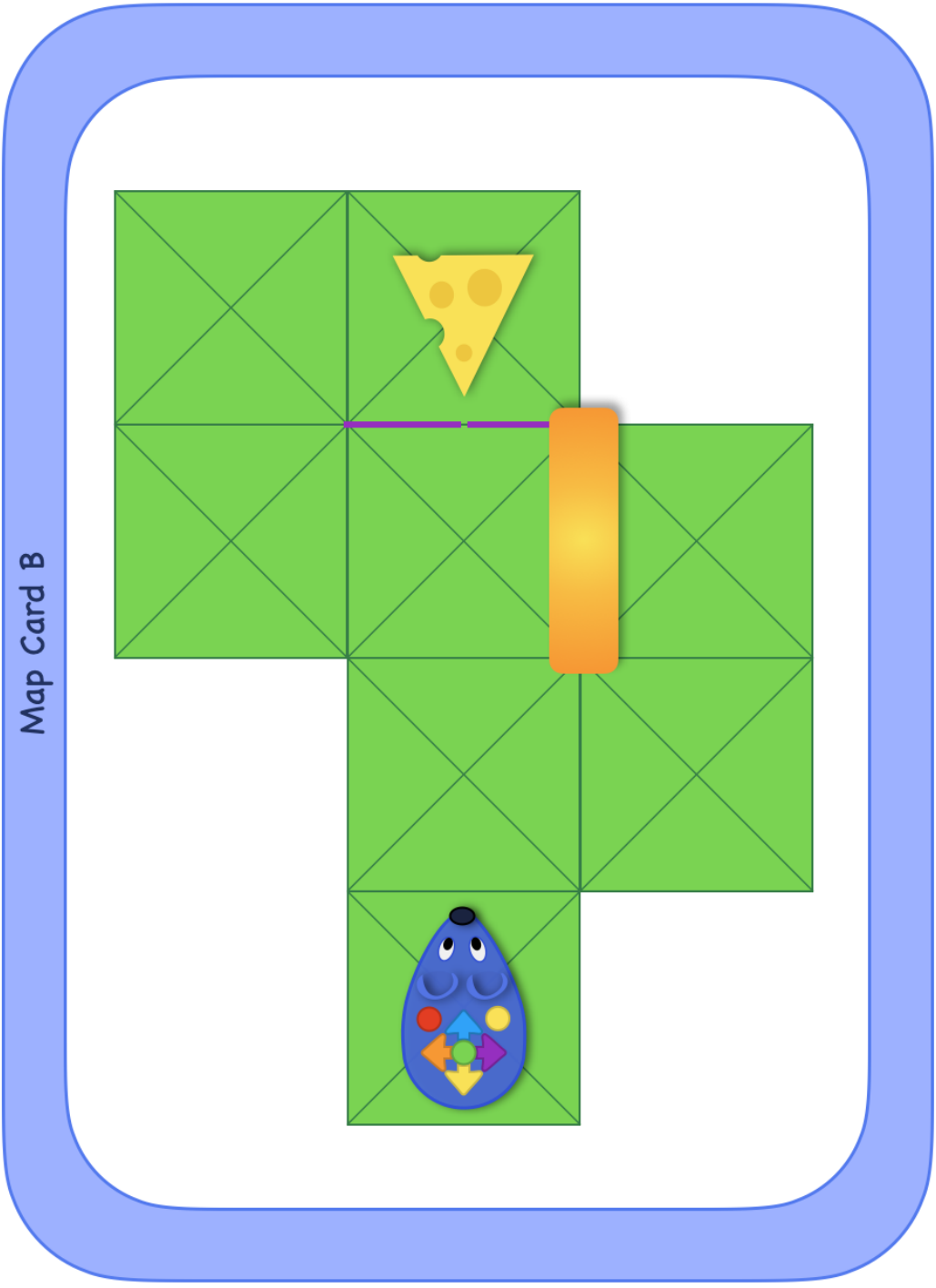
Map Card C
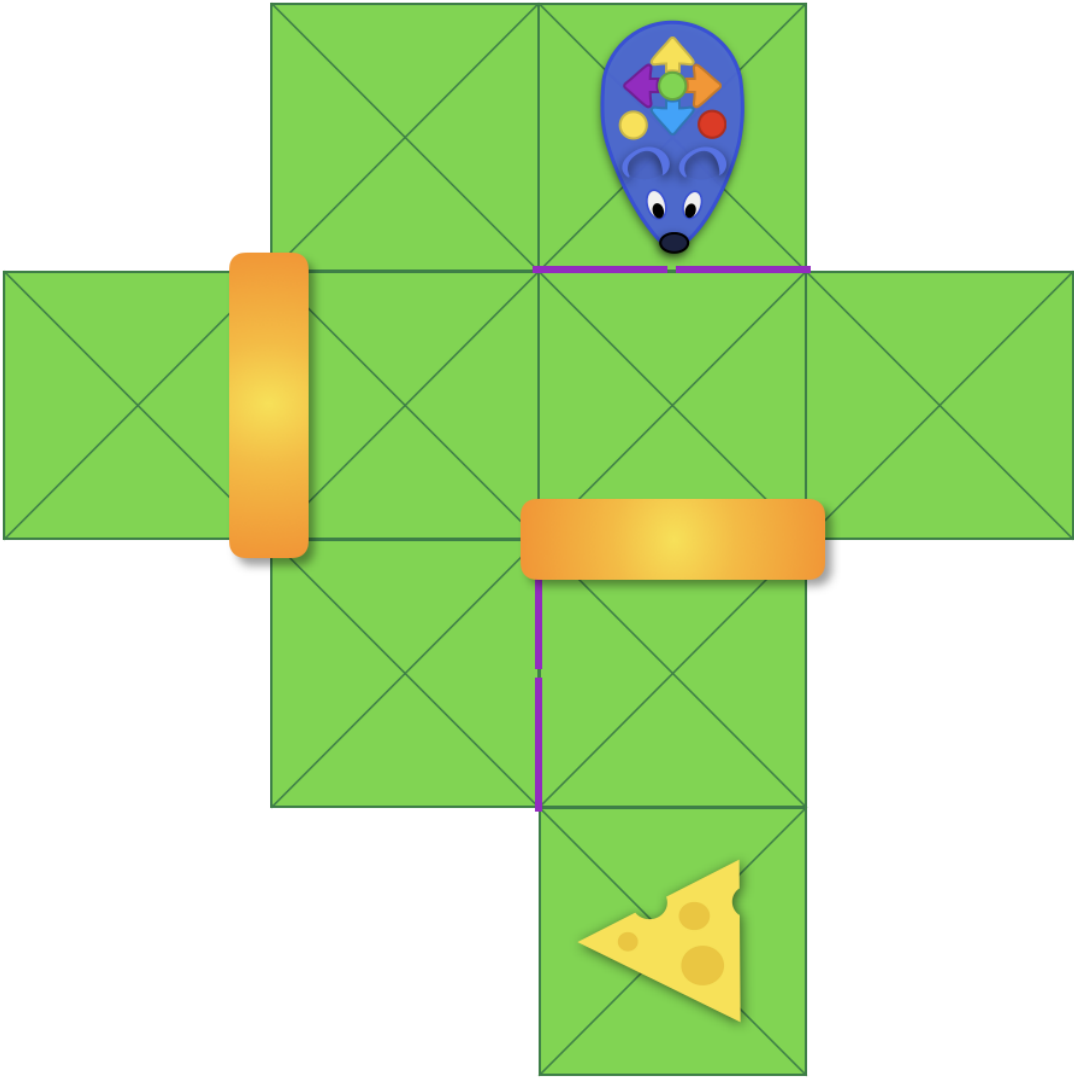
Direction Cards
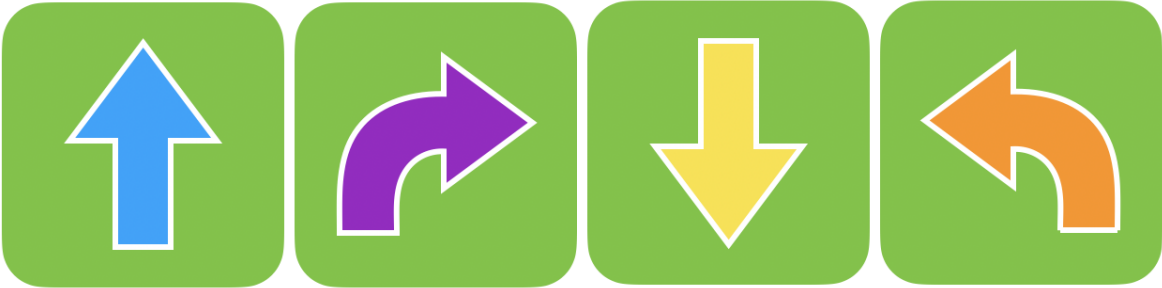
Sequencing with Multiple Logic Paths + Literacy
The Snowy Day (Unplugged ver.)

ReCT
Rethinking Circle Time

Lesson Summary	In this literacy and CT lesson, students work on sequencing the events of a familiar process and making connections with literature using *The Snowy Day* by Ezra Jack Keats and *The Jacket I Wear in the Snow* by Shirley Neitzel. These books take students through Peter's day in the snow and the articles of clothing needed to play in the snow. Students identify articles of clothing from the stories and in their own lives and use a flowchart to represent the order in which they get dressed to play in the snow.
Grade Level	K-2
Subjects Addressed	Literacy, Computational Thinking
Standards	- CSTA 1A-AP-08, 1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14 - CCSS-ELA - Kindergarten: SL.K.1, SL.K.2, SL.K.4, RL.K.1, RL.K.10 - First Grade: SL.1.1, SL.1.2, SL.1.4, RL.1.1, RL.1.10 - Second Grade: SL.2.1, SL.2.2, SL.2.4, RL.2.1
Learning Objectives	Students will be able to: **Literacy:** engage in high level talk about the books and make connections between the stories and their own lives. **Computational Thinking:** sequence the events of a daily process using a flowchart.
Teacher Background and Content Information	**Sequences:** Sequences refer to the order in which items are organized. In this lesson the important aspect of sequencing is multiple logic paths. This means that there are different correct ways to put items in order. With multiple logic paths, there are often some items that have to be in a specific order and others which fit in multiple places. **Reading strategy:** Making connections between the stories, activity, and students' lives.
Differentiate/ Inclusion	**For lower grades:** This activity can be done in small student groups or as a whole class. If students are not working individually use the group space to initiate discussion about multiple correct sequence outcomes. There are many ways to order the clothing items so doing the activity as a group can provide an opportunity to target the concept of multiple logic paths. **For upper grades:** To add a challenge for students, the literacy component of making connections can be expanded. Provide students with writing or drawing materials and have them write or draw about a time they played in the snow with friends. Have students add in a description of the clothes they wear to play in the snow.

	Per class:
Materials	_The Snowy Day_ by Ezra Jack Keats _The Jacket I Wear in the Snow_ by Shirley Neitzel (1) Winter Clothing Flowsheet for demonstration purposes. Lamination is recommended for future use. (1) Set of Winter Clothing Cards. Lamination is recommended for reuse. **Per student:** (1) Winter Clothing Flowchart. Lamination is recommended for reuse. (1) Set of Winter Clothing Cards. Lamination is recommended for reuse.

Overall Description

Launch/ Engage	1. **Introduce and read the book.** Say: _Have you ever read the book **The Snowy Day**? I love this book because it reminds me of how much fun it is to play in the snow with friends._ Read the book accessible through the link in the materials section of the lesson plan. 2. **Discuss the book.** Ask: _Have you ever played in the snow? What do you have to put on? Let's pretend you are Peter's friend and are getting ready to go outside to play in the snow. You both need to get on your snow gear. How could you tell Peter to get dressed? What are some of the things that you need to put on to get ready to play in the snow?_ As students name items, pull out the corresponding clothing card or draw pictures on the white board. 3. **Identify clothing items and make connections.** Say: _So, you mentioned a lot of items that you can use to get ready to play in the snow. I have a series of cards with images of other things that people use to get ready to play in the snow. Do you know what these are?_ Let students point to cards and tell you what they are. As they point to cards and name them correctly, ask: _Have you ever worn this? Have you seen others wear this?_ NOTE: If they don't know what something is, you can tell them what it is and how people use it. Ask students if they have any questions about what the cards represent.
Explore	1. **Introduce the activity.** Provide students with the clothing cards and flowchart. Say: _Now that we know what all these items are, how would you tell Peter to get ready to play in the snow. Put the cards into the flowchart to show Peter what to do after he wakes up, so he is ready to play in the snow. What piece of clothing would you put on first?_ 2. **Explore.** Let students grab a card and put it in the first spot. While they are working on the activity, observe which cards they select and put back. As you observe you can encourage reflection by asking questions as students touch and place each card. Ask: _Why did you put that one next? Is this how you get ready? Why did you put that one back?_ 3. **Conclude.** Say: _You all did a great job providing Peter with directions to get ready to play in the snow. Now we are going to read another one of my favorite books about the clothes you can use to protect you when we play in the snow!_
Summarize/ Explain	1. **Read.** Say: _This book is called **The Jacket I Wear in the Snow**._ Read the book. 2. **Revisit the activity.** Say: _Okay now let's look back at the flowchart you worked on earlier. Did this change the order you gave to Peter to put the items on?_ Encourage

students to compare with their classmates. Ask: *If you look around at your friends' organizers do you notice any similarities or differences? Does everyone's order have to be the same?* NOTE: Try to help students understand that some items must go before others (i.e., socks before boots), but some items have more flexibility (i.e., scarf before or after jacket/coat).

3. **Conclude.** Say: *Thank you so much for helping me get Peter ready for the snow!* If you have time, lead a discussion encouraging students to connect their own lives back to the context of the activity. Say: *What's your favorite thing to do in the snow once you get all bundled up?*

Apply/ Extend

Students use a pre-coded Scratch project to get the sprite dressed up to play in the snow. The project is accessible through the link: https://scratch.mit.edu/projects/709757864
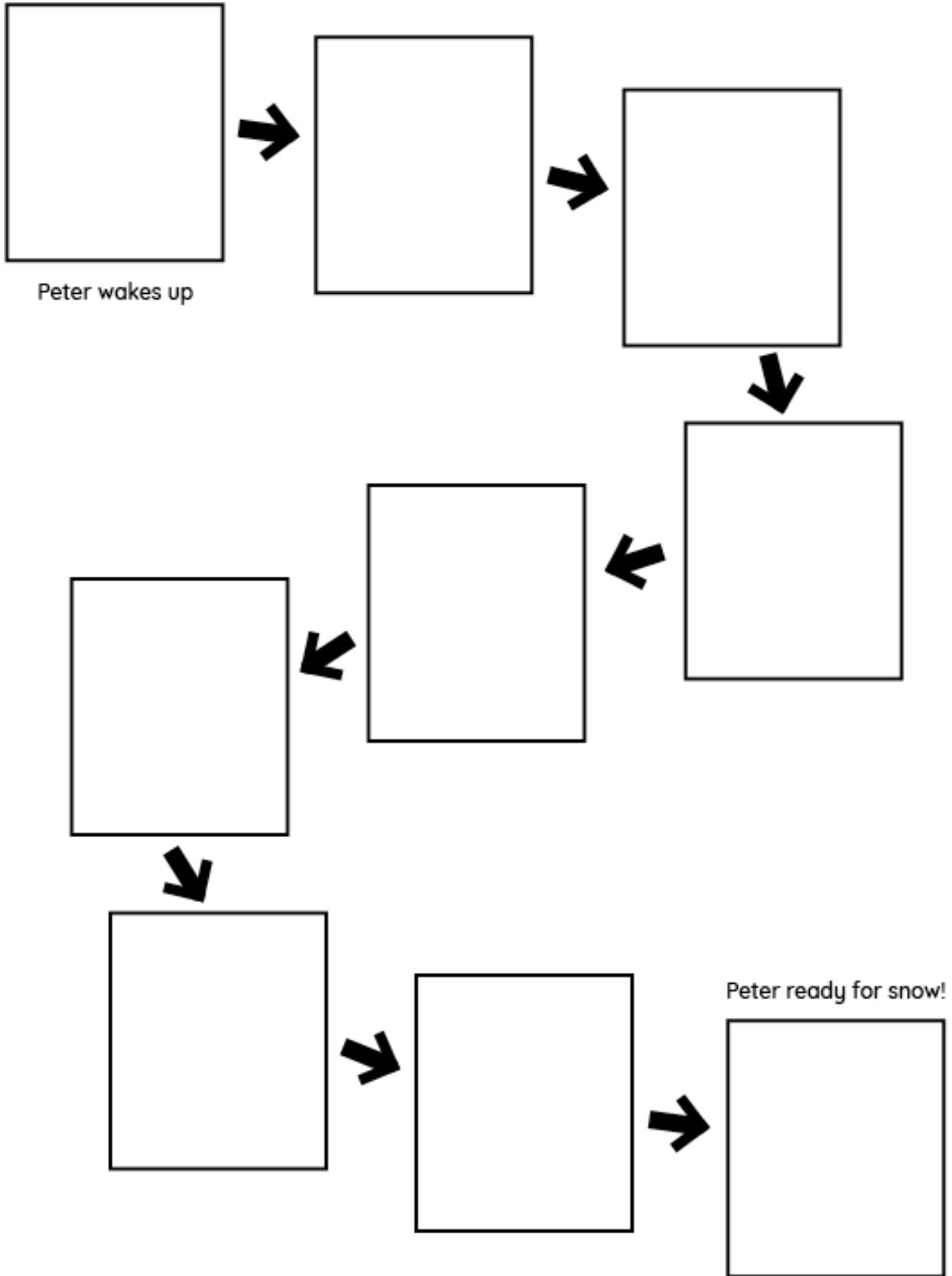
1. **Introduce the activity.** Say: *This game shows a stick figure version of Peter from our story, and you can use the clothes on the screen to help him get ready to play in the snow! When you click on the item it will show up on Peter. If you mess up and want to try again just click on the green flag button and you can restart! Can you try to help click on the clothes in the order that you think he will need to get dressed to be able to play in the snow?*

2. **Explore.** Have students explore the Scratch project. Ask: *Do you have any questions before you begin?* Answer student questions about Scratch making sure they do not alter the actual blocks of code. If students are interested in the coding portion, explain that the blocks are directions for each of the items of clothing telling them what to do when you click on them or click on the green flag. If students get distracted throughout the activity with the coding aspects say: *I know this is super fun but right now we should focus on helping Peter get dressed up to play in the snow! If we have some extra time, you can explore Scratch more later or at home.*

3. **Discussion.** Let students click on the clothing items. Observe which items they select and which items encourage them to restart. While they are working, walk around to students and prompt reflection around sequencing by asking: *Why did you put that one next? Is this how you get ready? Why did you restart?*

Teacher Notes

Set of Winter Clothing Cards

Scarf	Long Underwear	Jacket/Coat
Mittens/Gloves	Sweater	Boots
Snow Pants	Socks	Hat

Winter Clothing Flowchart

Peter wakes up

Peter ready for snow!

Sequencing with Multiple Logic Paths + Literacy:
The Snowy Day (Embodied ver.)

ReCT
Rethinking Circle Time

Lesson Summary	In this literacy and CT lesson, students work on sequencing the events of a familiar process and making connections with literature using **The Snowy Day** by Ezra Jack Keats and **The Jacket I Wear in the Snow** by Shirley Neitzel. These books take students through Peter's day in the snow and the articles of clothing needed to play in the snow. Students identify articles of clothing from the stories and in their own lives and use a paper doll to represent the order in which they get dressed to play in the snow.
Grade Level	K-2
Subjects Addressed	Literacy, Computational Thinking
Standards	- CSTA 1A-AP-08, 1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14 - CCSS-ELA - Kindergarten: SL.K.1, SL.K.2, SL.K.4, RL.K.1, RL.K.10 - First Grade: SL.1.1, SL.1.2, SL.1.4, RL.1.1, RL.1.10 - Second Grade: SL.2.1, SL.2.2, SL.2.4, RL.2.1
Learning Objectives	Students will be able to: **Literacy:** Engage in high level talk about the books and make connections between the stories and their own lives. **Computational Thinking:** Sequence the events of a daily process using a paper doll.
Teacher Background and Content Information	**Sequences:** Sequences refer to the order in which items are organized. In this lesson the important aspect of sequencing is multiple logic paths. This means that there are different correct ways to put items in order. With multiple logic paths, there are often some items that have to be in a specific order and others which fit in multiple places. **Reading strategy:** Making connections between the stories, activity, and students' lives.
Differentiate/ Inclusion	**For lower grades:** This activity can be done in small student groups or as a whole class. If students are not working individually use the group space to initiate discussion about multiple correct sequence outcomes. There are many ways to order the clothing items so doing the activity as a group can provide an opportunity to target the concept of multiple logic paths. **For upper grades:** To add a challenge for students, the literacy component of making connections can be expanded. Provide students with writing or drawing materials and have them write or draw about a time they played in the snow with friends. Have students add in a description of the clothes they wear to play in the snow.

Materials	**Per class:** ● *The Snowy Day* by Ezra Jack Keats https://fliphtml5.com/vfyjm/cypw ● *The Jacket I Wear in the Snow* by Shirley Neitzel https://fliphtml5.com/piaso/misz ● (1) Winter Clothing Doll for demonstration purposes. Lamination is recommended for future use. ● (1) Set of Winter Clothing. Lamination is recommended for reuse. **Per student:** ● (1) Winter Clothing Doll. Lamination is recommended for reuse. ● (1) Set of Winter Clothing. Lamination is recommended for reuse.

Overall Description

Launch/ Engage	1. **Introduce and read the book.** Say: *Have you ever read the book **The Snowy Day**? I love this book because it reminds me of how much fun it is to play in the snow with friends.* Read the book accessible through the link in the materials section of the lesson plan. 2. **Discuss the book.** Ask: *Have you ever played in the snow? What do you have to put on? Let's pretend you are Peter's friend and are getting ready to go outside to play in the snow. You both need to get on your snow gear. How could you tell Peter to get dressed? What are some of the things that you need to put on to get ready to play in the snow?* As students name items, pull out the corresponding paper clothing item or draw pictures on the white board. 3. **Identify clothing items and make connections.** Say: *So, you mentioned a lot of items that you can use to get ready to play in the snow. I have a series of images of other things that people use to get ready to play in the snow. Do you know what these are?* Let students point to clothing items and tell you what they are. As they point to clothes and name them correctly, ask: *Have you ever worn this? Have you seen others wear this?* NOTE: If they don't know what something is, you can tell them what it is and how people use it. Ask students if they have any questions about what the paper clothes represent.
Explore	1. **Introduce the activity.** Provide students with the clothing items and paper doll. Say: *Now that we know what all these items are, how would you tell Peter to get ready to play in the snow. Put the clothes on this version of Peter to show him what to do after he wakes up, so he is ready to play in the snow. What piece of clothing would you put on first?* 2. **Explore.** Let students grab an item and put it in the first spot. While they are working on the activity, observe which items they select and put back. As you observe you can encourage reflection by asking questions as students touch and place each item. Ask: *Why did you put that one next? Is this how you get ready? Why did you put that one back?* 3. **Conclude.** Say: *You all did a great job providing Peter with directions to get ready to play in the snow. Now we are going to read another one of my favorite books about the clothes you can use to protect you when we play in the snow!*
Summarize/ Explain	1. **Read.** Say: *This book is called **The Jacket I Wear in the Snow**.* Read the book. 2. **Revisit the activity.** Say: *Okay now let's look back at the version of Peter you worked on earlier. Did this change the order you gave to Peter to put the items on?* Encourage students to compare with their classmates. Ask: *If you look around at your friends'*

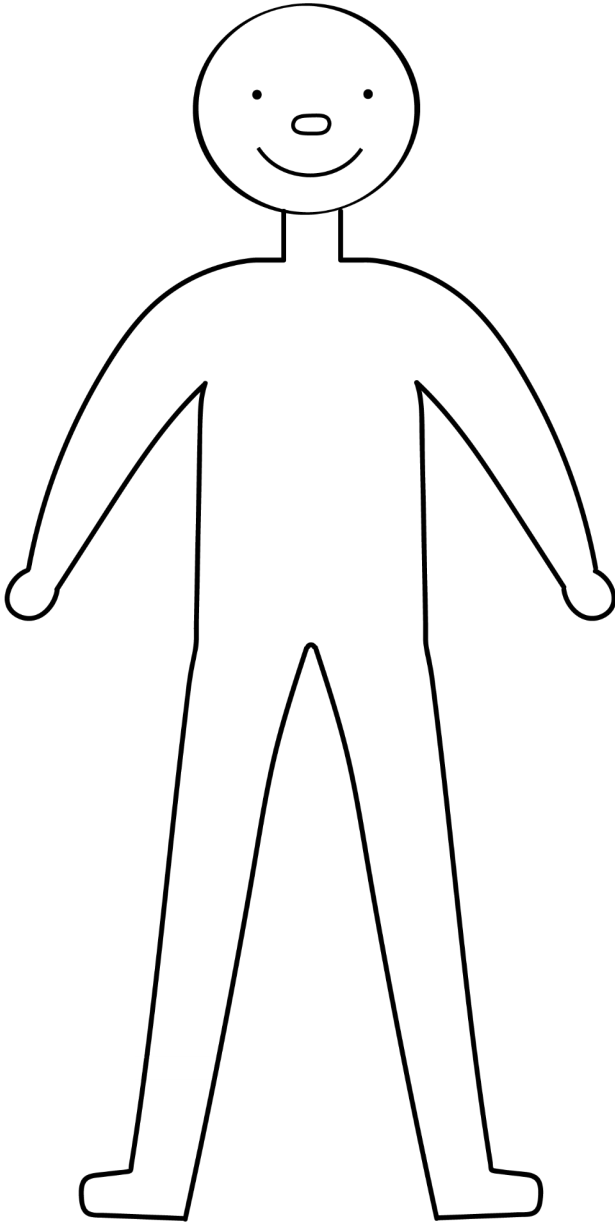|	
	organizers do you notice any similarities or differences? Does everyone's order have to be the same? NOTE: Try to help students understand that some items must go before others (i.e., socks before boots), but some items have more flexibility (i.e., scarf before or after jacket/coat). 3. **Conclude.** Say: *Thank you so much for helping me get Peter ready for the snow!* If you have time, lead a discussion encouraging students to connect their own lives back to the context of the activity. Say: *What's your favorite thing to do in the snow once you get all bundled up?*
Apply/ Extend	Students use a pre-coded Scratch project to get the sprite dressed up to play in the snow. The project is accessible through the link: https://scratch.mit.edu/projects/709757864 1. **Introduce the activity.** Say: *This game shows a stick figure version of Peter from our story, and you can use the clothes on the screen to help him get ready to play in the snow! When you click on the item it will show up on Peter. If you mess up and want to try again just click on the green flag button and you can restart! Can you try to help click on the clothes in the order that you think he will need to get dressed to be able to play in the snow?* 2. **Explore.** Have students explore the Scratch project. Ask: *Do you have any questions before you begin?* Answer student questions about Scratch making sure they do not alter the actual blocks of code. If students are interested in the coding portion, explain that the blocks are directions for each of the items of clothing telling them what to do when you click on them or click on the green flag. If students get distracted throughout the activity with the coding aspects say: *I know this is super fun but right now we should focus on helping Peter get dressed up to play in the snow! If we have some extra time, you can explore Scratch more later or at home.* 3. **Discussion.** Let students click on the clothing items. Observe which items they select and which items encourage them to restart. While they are working, walk around to students and prompt reflection around sequencing by asking: *Why did you put that one next? Is this how you get ready? Why did you restart?*

Teacher Notes

Winter Clothing Doll

Set of Winter Clothing

5