

Rethinking Circle Time

How does a Mouse Coding Robot work?

Manual introduction for teachers



Lesson Summary	In this introductory lesson, students build on one another's discoveries to articulate the functions of each button on a robot mouse, coding cards, barriers (Tunnels & walls), and map blocks.
Grade Level	K-2
Subjects addressed	Computational Thinking
Standards	<ul style="list-style-type: none">● CSTA: 1A-DA-06, 1A-AP-08, 1A-AP-09, 1A-AP-11, 1A-AP-14
Learning Objectives	Students will be able to: <ul style="list-style-type: none">● Discover and articulate the functions of mouse coding robot, direction cards, barriers, and maps.● Use mouse coding robot for self-expression and group play
Teacher Background and Content Information	<p>Sequencing: Sequencing is both a reading strategy and a computational thinking concept. In computational thinking, sequencing is a part of the idea of algorithms. Algorithms are step-by-step, ordered procedures to accomplish a task. Students must learn to create directions so that a machine can follow them and produce the intended result. This activity is meant to explore the idea of sequencing both to retell the story and to explore the students' ideas of reversing directions as a computational sequencing strategy.</p> <p>Functions of buttons:</p> <div data-bbox="365 1312 909 1648"></div> <p>Reinforce green button means go-it tells the mouse to perform an action. Remember to press and hold the yellow button to clear the mouse's memory after each command. Otherwise, the mouse will remember previous commands and perform them with new ones.</p> <p>The rules:</p> <ul style="list-style-type: none">- Coding cards: Colorful coding cards help children keep track of each step in a sequence. These are color-coordinated to match the button on the mouse. Before pressing the button to code, students need to lay out coding cards. Explain that these cards help map the mouse's path.- Tunnels: Students should use all the tunnels before reaching the cheese.

	<ul style="list-style-type: none"> - Walls: Students cannot cross the wall - The order of activity: First, the designer should create the map according to the picture, and then the navigator plan the sequence with coding cards and read it to the driver then the driver can press the button following what the navigator commands.
Differentiate/ Inclusion	<p>Kindergarten: Set a robot mouse in the math/science (or any area) area for students to explore in free-choice time.</p> <p>All: This lesson is for whole class circle time, but it can be implemented in a small group setting. In the small group setting, the designer's role might not have to exist, a teacher can create the map for the navigator and driver. The group setting and roles can vary depending on how many students are in each group and how many mouse robots you have.</p>
Materials	<p>Mouse robot set (Robot mouse, Map blocks, Coding cards, Tunnels, Walls, and cheese), Driver, Navigator, Designer lanyard (3 for each group), Picture maps (Picture 1-3), Timer, or chime</p>

Overall Description

Launch/ Engage	<ol style="list-style-type: none"> 1. Introduce the mouse coding robots. The robot needs humans like us to give them directions in a way they can understand and move. Talk about all the buttons (color and functions). Invite some students to come out and press the button. <ul style="list-style-type: none"> - How many buttons does the robot have? What colors are they? - Can you guess what these buttons are? What happens if I press this button? - Can you see the light from the eyes? - How do you turn the robot on and off? <p>If they are already familiar with the robot mouse, you can ask,</p> <ul style="list-style-type: none"> - Are there any interesting things that you found when you played with this robot? - Did you have any challenges? 2. Introduce coding cards, tunnels, walls, and block maps. <ul style="list-style-type: none"> - What kinds of things can you find from the coding cards? <p>Help them to find cards that are color-coordinated to match the buttons on the robot mouse. Explain to students that the coding cards will help to code the robot mouse.</p> <ul style="list-style-type: none"> - (Showing tunnel) What is this for? How do you think we use it? <p>Let them guess how tunnels and walls work. Explain to students that if there are tunnels on the map, they should pass all the tunnels before getting to the endpoint, and they cannot cross the wall.</p> 3. Embodied option: Instead of showing how the robot mouse moves, teachers can be a robot mouse and show how each button works.
Explore	<ol style="list-style-type: none"> 1. Debrief the warm-up. <ul style="list-style-type: none"> - Where do clear and go button come into play? - What is the rule that we should remember when we have tunnels on the map? 2. Introduce the activity. <ul style="list-style-type: none"> - Today, we are going to play with the mouse coding robots together! The goal of the activity is to help the mouse get to the cheese using the direction buttons on the mouse. - (Showing the picture map) this is what your game board is going to look like

when you start, and you will be able to use the mouse robot across the squares to reach the cheese.

- We have three different maps and three different roles for this activity.

There are three different maps (link) Students are going to complete three different maps.

There are three roles in this activity 1)Designer, 2) Driver, and 3)Navigator. Three students will be in one group (it can vary).

1) **Designer** picks the map and creates the map.

2) **Planner** plans the program using coding cards. Read the sequence to the driver.

3) **Programmer** programs the robot by pressing the buttons.

Explain to students which roles we need, and choose how to decide who is going to take each role. Make sure you have enough time for them to experience all three roles and play with all three maps (5 min for each map). Give the designer's, navigator's, and driver's lanyards to students.

3. Group activity

- Okay! it is time to start making the map first, who is the designer? Designer, could you take this picture map to your group? And you are going to create the map following the picture map.

Check all the groups to see if there is someone who gets stuck or not, and support them in solving the problem. If all groups complete the first map, you can ring the bell for them to know they need to change their roles and the maps.

Share

1. Circle share

Student showcase

- Today, we played with the mouse robot and helped the mouse find the cheese. Is there anyone who wants to share how his/her group helped the mouse robot to get the cheese?

Debrief content

- What problems came up while we were coding the mouse robot?
- Which role was most interesting or challenging, and why?
- Which map was the most interesting or challenging, and why?

Debrief process

- Who would we like to thank in our group for taking turns, treating the mouse robot kindly, having a great idea, etc.?

Apply/ Extend

Mouse robots can be **integrated with the other activities**, for example, when you talk about topics related to number counts (How many forward coding cards do we need?) and directions (Forward/backward/right/left). **Another idea** is that students can create their own maps and play with them. Designers can create the maps that they want using more block maps, tunnels, and walls. If the map gets complicated, you might be able to add more roles such as a **debugger** who finds and helps fix errors.

Teacher Notes

Rethinking Circle Time
Sequencing:
Simple Conditional Logic



<p>Lesson Summary</p>	<p>In this CT lesson, students will work on developing the conditional logic required to construct sequences and to understand how programs store and manipulate data. They will perform unplugged and embodied activities to use simple conditional logic.</p>
<p>Grade Level</p>	<p>K-2</p>
<p>Subjects Addressed</p>	<p>Computational Thinking</p>
<p>Standards</p>	<ul style="list-style-type: none"> ● CSTA: 1A-DA-06, 1A-AP-08, 1A-AP-09, 1A-AP-11, 1A-AP-14
<p>Learning Objectives</p>	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Computational Thinking: Sequence connecting items following simple conditional logic.
<p>Teacher Background and Content Information</p>	<p>Sequencing: Sequencing is both a reading strategy and a computational thinking concept. In computational thinking, sequencing is a part of the idea of algorithms. Algorithms are step-by-step, ordered procedures to accomplish a task. Students must learn to create directions so that a machine can follow them and produce the intended result. This activity is meant to explore the idea of sequencing both for the purpose of retelling the story and to explore the students’ ideas of reversing directions as a computational sequencing strategy.</p>
<p>Differentiate/ Inclusion</p>	<p>There are three different levels for the activity presented in this lesson. Lower grade students may start with level 1 and move forward to the next ones. Middle and upper grade students may start with level 2 and continue with level 3.</p>
<p>Materials</p>	<p>There are three levels for the activity. Each level needs the following material. Print one per student or per pair depending on your preference.</p> <ul style="list-style-type: none"> ● Picture cards ● Direction cards ● Circle diagram <p>The extension activity includes only picture cards to print and give to each student. The direction cards are the same as the one used in the proposed activity.</p>

Overall Description

Launch/ Engage	<ol style="list-style-type: none">1. Introduce the conditional logic A->B and B->C. Have a conversation with the whole class about how their morning routine usually is. Write down on the board each activity and highlight the importance of following a specific order. Use arrows (i.e., wake up -> stand up -> go to the restroom, etc.) to highlight the order and the logic of the sequence. You can ask questions such as “Can we take a shower without getting out of the bed?” or “can we put the socks on after putting the shoes on? Depending on how students are understanding the concept of sequence, it is possible to use more abstract language and explain that those events follow a logical sequence A->B, B->C. This is a basic conditional logic that computers use to read programs. Say: <i>Computers work following a sequence of events or steps that we have asked them to do. They will do those steps in specific from a start point to an end point. Today we are going to learn a little more about the rules that computers follow to perform tasks.</i>
Explore	<ol style="list-style-type: none">1. Pass around the cards and the diagram to each student depending on the group level. Make sure the direction cards are out in front of the student but mixed up. This activity can be done individually or in pairs. Say: <i>I have a series of direction cards that I have in a pile here in front of us</i>2. Get familiar with the cards. Let students play with the cards and set up the cards however they want. Ask questions to get at their thinking on what they are doing to solve the task.3. Place the cards according to instructions. Make sure students also have the circle diagram and picture cards in front of them. Ask: <i>Can you help me by using these direction cards to put these pictures into the correct order? You can do whatever you want to do to help you put these pictures in order.</i>4. Support the students as needed and repeat the activity using the provided different levels of difficulty. If they can't get anywhere or become frustrated:<ol style="list-style-type: none">a. Say: <i>You will start with ____.</i> (Pick one - In this exercise, it doesn't matter which one they start with).
Summarize/ Explain	<ol style="list-style-type: none">1. General discussion about the activity. Say: <i>Today we practiced how computers read and understand what we want from them. Namely, we created sequences based on rules. Similarly, we will give computers instructions that they will follow using the general rule of going from the beginning to the end in an A->B, B->C order. We call programming when we give those instructions to the computers. So, who can explain to me how computers understand the world? Who can tell me what programming is? Based on students' answers, guide the conversation to make sure students understand that when we do programming, we give computers instructions in a specific order that they follow exactly.</i>
Apply/ Extend	<ol style="list-style-type: none">1. Acting out the task. This activity is similar to the above one but students will be acting out the task and physically moving their bodies instead of moving the cards onto the circle diagram. You can choose the2. Setting up the activity.

Say: *"Each of you will be given a picture card to hang around your neck. I have a series of direction cards that I will put up for everyone to see. These direction cards will help us to put the picture cards in a specific order. Using these direction cards you will move yourself (based on the picture card around your neck) into a circle so that the order is represented."*

3. **Give the cards.** Pass out the picture cards (found below) so that each student has their own card. Print each picture on a separate card or paper and use a string to hang it around their necks.
4. **Let students organize according to the instructions.** Put up the direction cards (use the same cards from above) for all of the students to see. Have students arrange themselves into the order based on the direction cards.

Teacher Notes

Level 1 (Lower grade students): Picture Cards

5 Items: sun, cat, apple, house, zebra



sun



cat



apple



house



zebra

Level 1 (Lower grade students): Direction Cards

5 Items: sun, cat, apple, house, zebra



sun



cat



cat



apple



apple



house



house



zebra

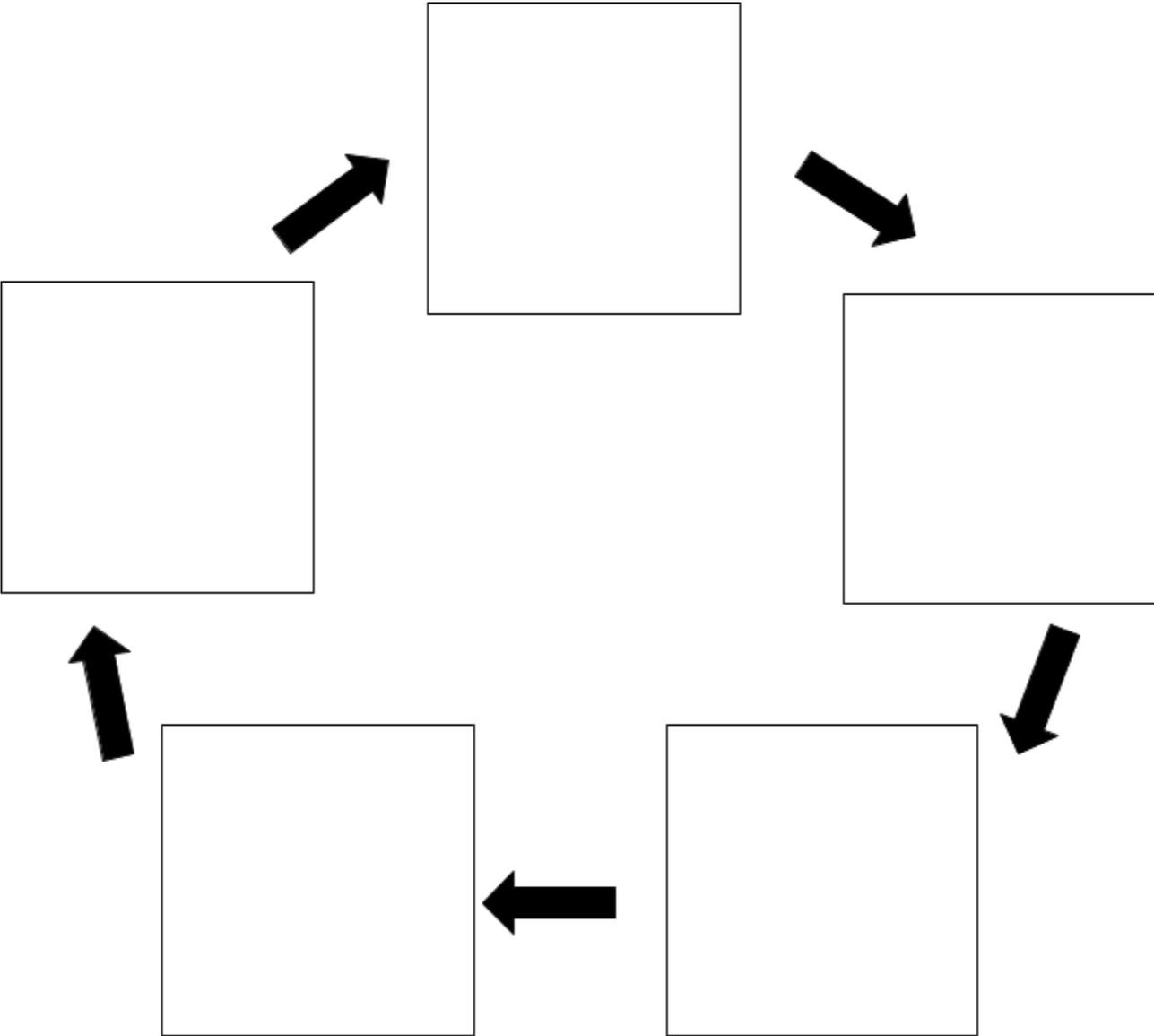


zebra



sun

Level 1 (Lower grade students): Circle Diagram



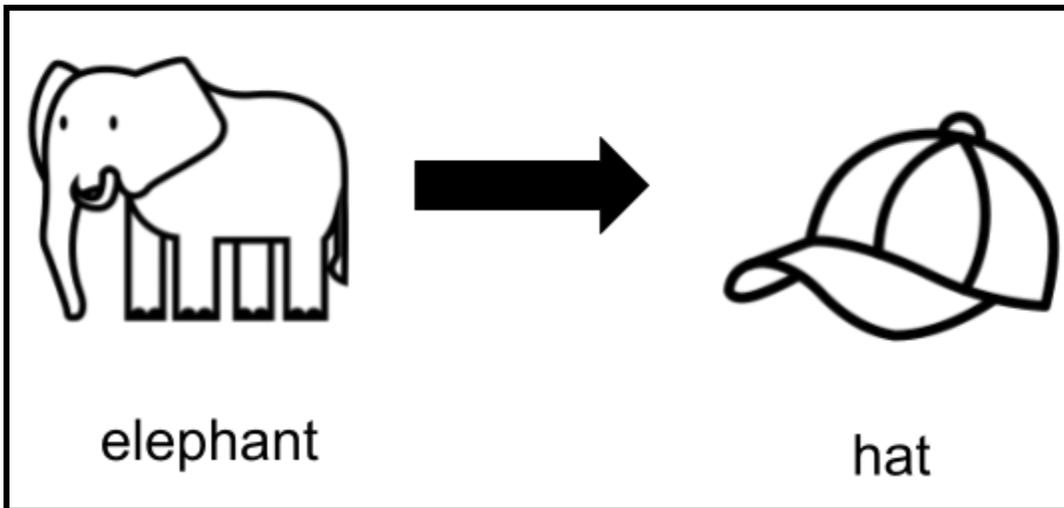
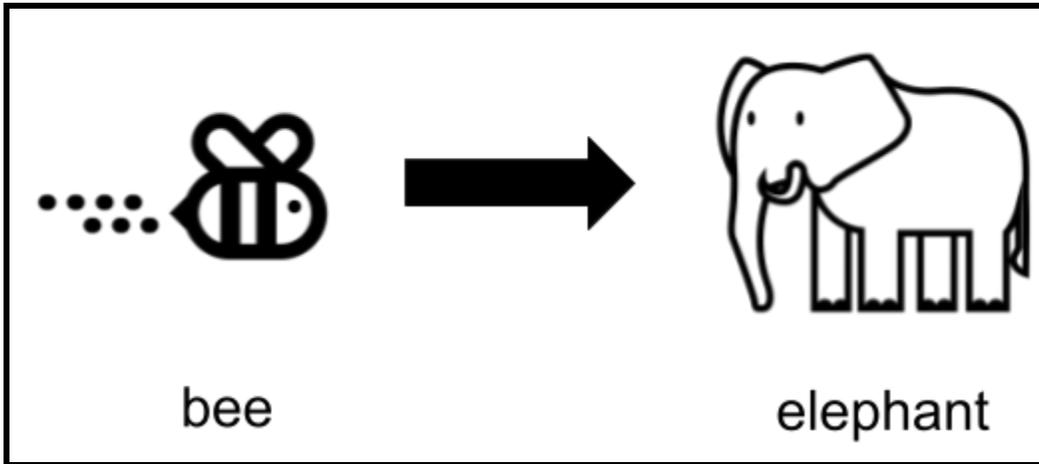
Level 2 (middle and upper level students) - Circle Cards

10 Items: bee, elephant, hat, glasses, lion, flower, dog, apple, monkey, pencil

 bee	 elephant	 hat	 glasses	 lion
 flower	 dog	 apple	 monkey	 pencil

Level 2 (middle and upper level students): Direction Cards

10 Items: bee, elephant, hat, glasses, lion, flower, dog, apple, monkey, pencil





hat



glasses



glasses



lion



lion



flower



flower



dog



dog



apple



apple



monkey



monkey



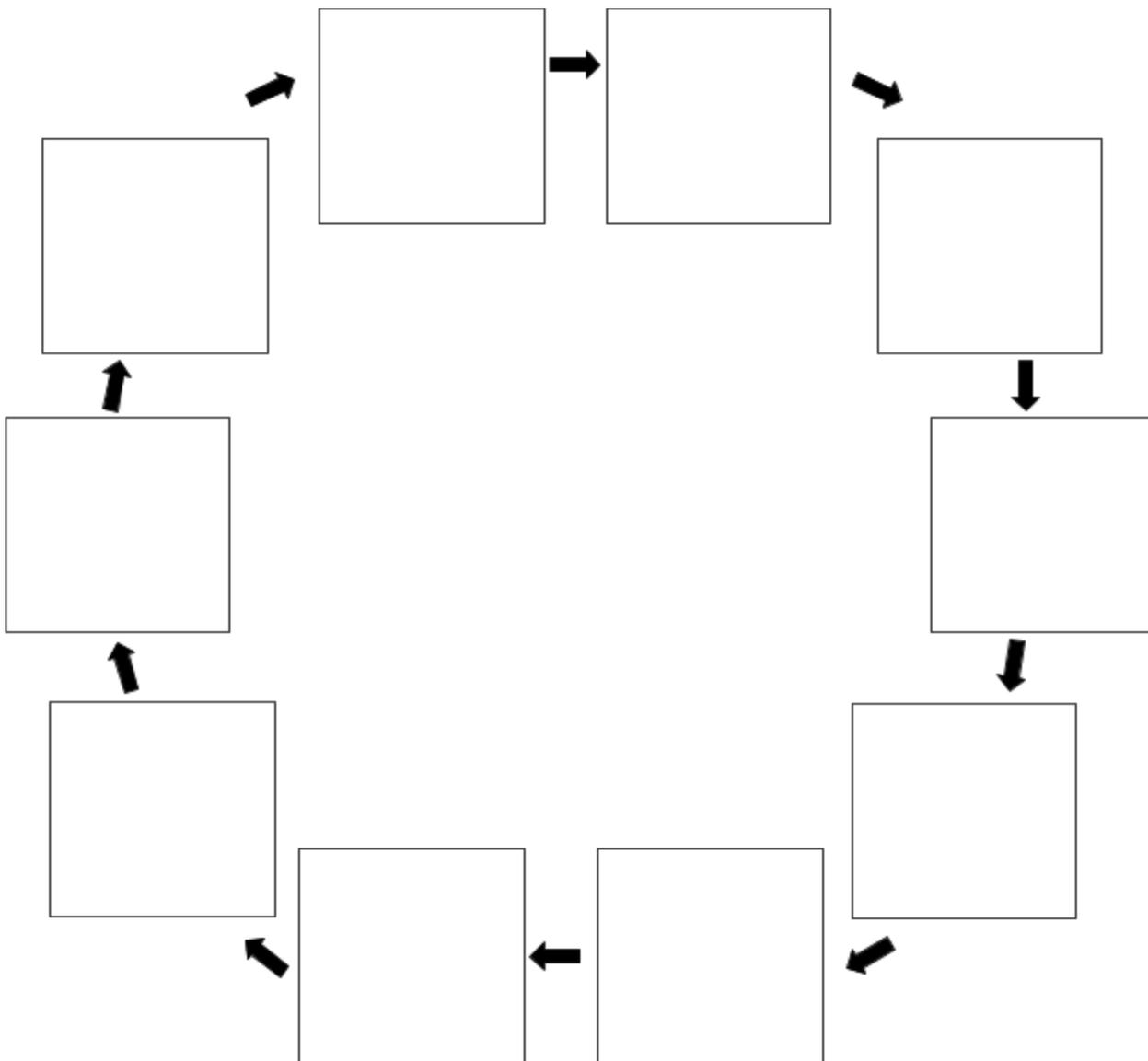
pencil



pencil



bee



Level 3 (middle and upper level students): Circle Cards

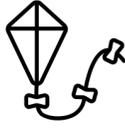
15 Items: cat, sun, kite, fish, tree, orange, umbrella, pig, rainbow, shoe, notebook, pencil, apple, ball, key



cat



sun



kite



fish



tree



orange



umbrella



pig



rainbow



shoe



paper



pencil



apple



ball



key

Level 3 (middle and upper level students): Direction Cards

15 Items: cat, sun, kite, fish, tree, orange, umbrella, pig, rainbow, shoe, notebook, pencil, apple, ball, key



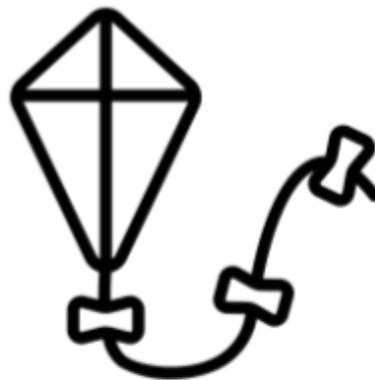
cat



sun



sun



kite



kite



fish



fish



tree



tree



orange



orange



umbrella



umbrella



pig



pig



rainbow



rainbow



shoe



shoe



paper



paper



pencil



pencil



apple



apple



ball



ball



key

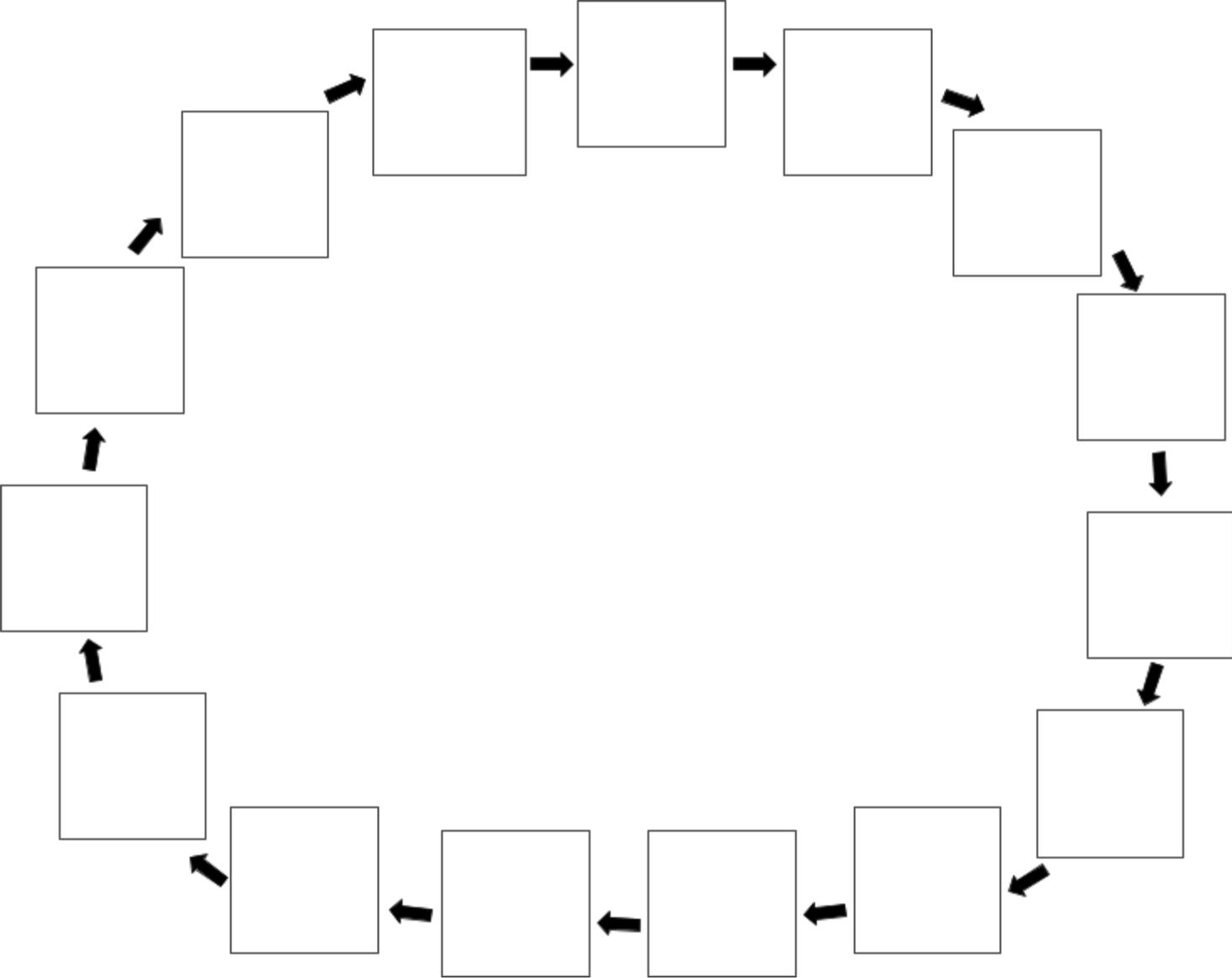


key



cat

Level 3 (middle and upper level students): Circle Diagram (15 items)



Extension Activity:

Level 1 (middle and upper level students): 5 Items: sun, cat, apple, house, zebra



sun



cat



apple

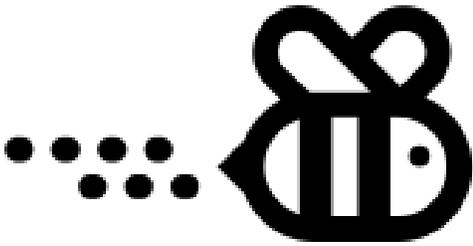


house

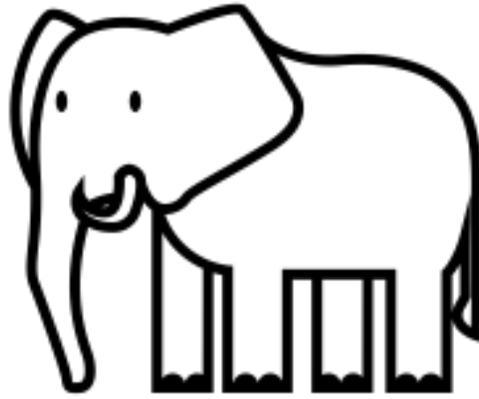


zebra

Level 2 (middle and upper level students): 2 - 10 Items: bee, elephant, hat, glasses, lion, flower, dog, apple, monkey, pencil



bee



elephant



hat



glasses



lion



flower



dog



apple



monkey

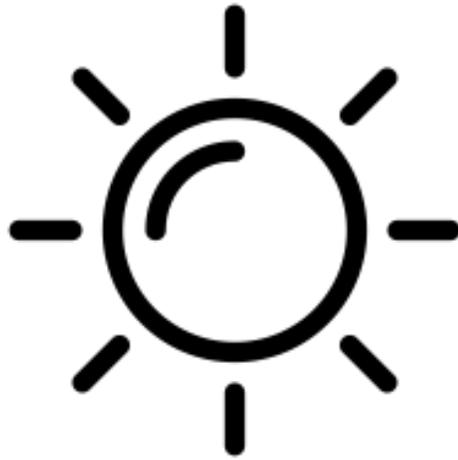


pencil

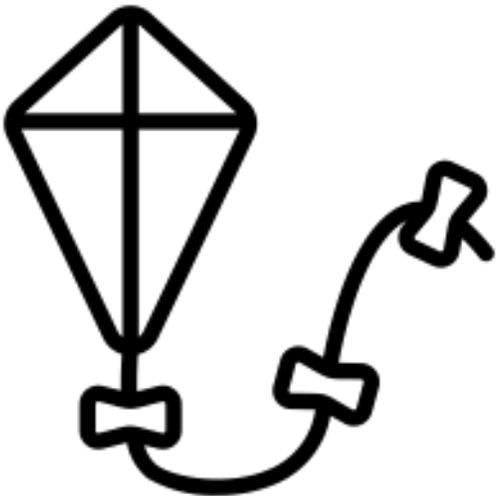
Level 3 (middle and upper level students): 15 Items: cat, sun, kite, fish, tree, orange, umbrella, pig, rainbow, shoe, notebook, pencil, apple, ball, key



cat



sun



kite



fish



tree



orange



umbrella



pig



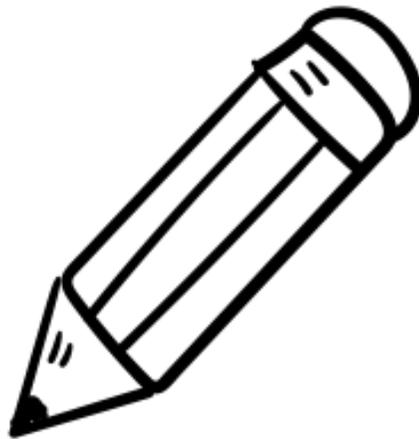
rainbow



shoe



paper



pencil



apple



ball



key

Rethinking Circle Time

Sequencing/Conditionals:

Simple Conditional Logic + Literacy:

If You Give a Mouse a Cookie



Lesson Summary	In this literacy and CT lesson, students work on sequencing and conditionals in a story using a book: If You Give a Mouse a Cookie. The book gives various directions and events on what will happen if a mouse receives a cookie. Students will use their literacy skills to support the performance in computational thinking.
Grade Level	K-2
Subjects Addressed	Literacy, Computational Thinking
Standards	<ul style="list-style-type: none">● CCSS-ELA:<ul style="list-style-type: none">○ RL.K.7, RI.K.3, SL.K.2○ RI.1.3, SL.1.2○ RL.2.7● CS (CSTA): 1A-DA-06, 1A-DA-07, 1A-AP-09, 1A-AP-10, 1A-AP-12, 1A-AP-14
Learning Objectives	Students will be able to: <ul style="list-style-type: none">● Literacy: Identify the sequence of the events in the story.● Computational Thinking: Present simple conditional logic using cards and a circle diagram.
Teacher Background and Content Information	<p>Sequencing: Sequencing in this lesson focuses on the reading strategy, which means to identify the components of the story and retell the events in order.</p> <p>Conditionals: In computational thinking, conditionals make decisions based on conditions. Depending on the conditions, different events will be performed. Conditionals are presented as "If... then..." statements. For example, If the score is greater than 100, then say "Congratulations!" Students should know that the next event will not be executed if the conditions are not fulfilled. This activity is meant to explore how sequencing in literacy supports students' performance of conditionals in computational thinking.</p>
Differentiate/ Inclusion	<p>For lower grades: The activities can be designed as collaborative group work instead of individual work.</p> <p>For upper grades: Encourage students to use long sentences to retell the story. Recreate a similar story and encourage students to lead the final step back to the first step. Include written activities.</p>
Materials	Direction cards, picture cards, and a circle diagram. Online book resource: If you give a mouse a cookie

Overall Description - Version 1: If You Give a Mouse a Cookie

Launch/ Engage

1. **Discuss sequencing.** Ask: *If I give you a cookie, what will you do then?* Let one student answer the question and ask another student based on the previous student's response to create a cause and effect chain. Make sure to use the "If... then..." statement. The teacher can write keywords, draw pictures, or ask students to write or draw on the blackboard depending on students' grade levels. This activity can prepare students for the Explore activity.
2. **Introduce the book.** Say: *Today I want you to help me with something. We are going to read the book, If You Give a Mouse a Cookie by Laura Numeroff, do you know that book? Have you read it before?*
3. **Read the book aloud.** Remind students to be aware of how the events are sequenced in the story.

Explore

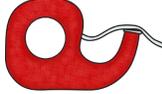
1. **Introduce the direction cards.** After reading the story, students will start to use cards to explore sequencing and conditionals. In this activity, the teacher can decide whether this is individual or collaborative group work based on students' level. Make sure the direction cards are out in front of the students but mixed up. Ask: *What do you think about these direction cards? Do you find it familiar when you see the pictures on it? What do you think the arrows mean?*
2. **Introduce the activity for the direction cards.** Say: *I am going to need you to help me to identify the order of the direction cards based on the book we read.* In this activity, students will lay out the direction cards in the way that makes sense to them. Give students 5 - 10 minutes to complete the task. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*
 - Say: *What do you see when you look at the pattern in the direction cards?*
 - Say: *I can read the page first and see if it will help you find the next card.* (Once the student is confident again go back to the original of finding the next card then reading).
 - Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously.
3. **Have students share their story (optional).** The teacher can ask a student/one group of students to share the story based on their sequence of direction cards. Ask: *Why did you decide to lay out the direction cards in this way? Do you think the direction cards help you to remember the story?*
4. **Introduce the picture cards and the circle diagram.** Ask: *What do you think we are going to do next? What can you tell me about this circle diagram? Have you seen anything like it before?*
5. **Introduce the activity for the picture cards and the circle diagram.** Say: *Now that we have the direction cards laid out in the correct order, let's put the picture cards into the correct order on the circle diagram.* Give students 5 - 10 minutes to complete the task. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*

	<ul style="list-style-type: none"> ○ Say: <i>What do you see when you look at the pattern in the direction cards?</i> ○ Say: <i>I can read the page first and see if it will help you find the next card.</i> (Once the student is confident again go back to the original of finding the next card then reading). ○ Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously. <p>6. Check with other students (optional). Have students visit other groups/students' work and observe if others' works are the same. Give students opportunities to self-correct mistakes.</p> <p>7. Retell the story using the "If...then..." statement. Invite students or groups to take turns retelling the story. They should use a short sentence with the "If... then..." statement. For example, <i>If a mouse gets a cookie, then he will ask for a glass of milk.</i></p>
Summarize/ Explain	<p>1. Reflect on the activities. Ask:</p> <ul style="list-style-type: none"> ○ <i>How do you feel about this activity?</i> ○ <i>Which part of the activity do you think is the most challenging one?</i> ○ <i>Did you encounter any problem during the activities? How did you solve them?</i> <p>2. Link the concept of reading strategy - sequencing with computational thinking - conditionals. Ask:</p> <ul style="list-style-type: none"> ○ <i>Why do you think you can remember the story so clearly?</i> ○ <i>If I gave you the picture cards and the circle diagram before the direction cards, would it be more challenging for you to remember the sequence of the story?</i> ○ <i>This story has a beginning and end. Take a look at your circle diagram and tell me what is the beginning and what is the end. Are they the same?</i> ○ <i>What if I change the story? For example, if I give a mouse a muffin, do you think the story will be the same? If the mouse didn't get a cookie, he probably wouldn't ask for a glass of milk to go with it, right? The purpose of this question is to clarify the logic of the conditionals.</i>
Apply/ Extend	<p>1. Act out the story. In this activity, students will act out the story. Say: <i>We are going to act out the actions in the book, If You Give a Mouse a Cookie. Each of you will be given a picture card to hang around your neck that represents a part of the story. I also have some direction cards that I am going to put here for you to see. The book and the direction cards will help us figure out what order we should put ourselves in.</i></p> <p>2. Give directions. Say: <i>As I read it, put yourselves in the circle in the order your item comes in the book.</i></p> <p>3. Read the book aloud.</p> <ul style="list-style-type: none"> ○ Start to read the book and pause after the first page ("If you give a mouse a cookie, he is going to ask for a glass of milk.") so that the students can find the direction card and then find the corresponding people to start the circle. ○ Then read the next page ("When you give him the milk, he'll probably ask you for a straw.") and again pause so that the students can find the direction card and set it out next to the first card. Then find the corresponding student to add to the circle. ○ Then read one more page ("When he's finished, he'll ask for a napkin.") and again pause so that the students can find the direction card and set it next to the other two cards. Then find the corresponding student to add to the circle.

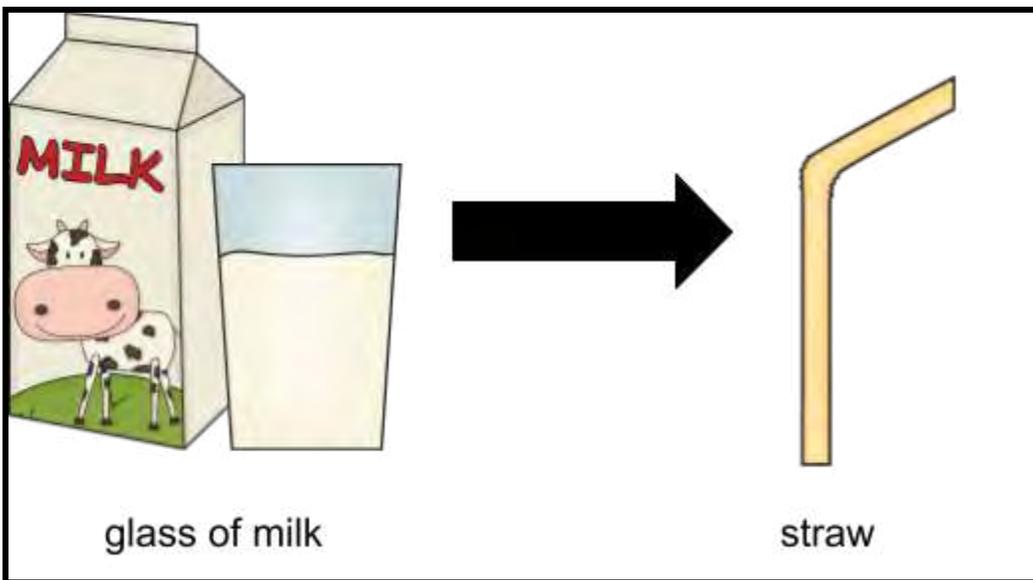
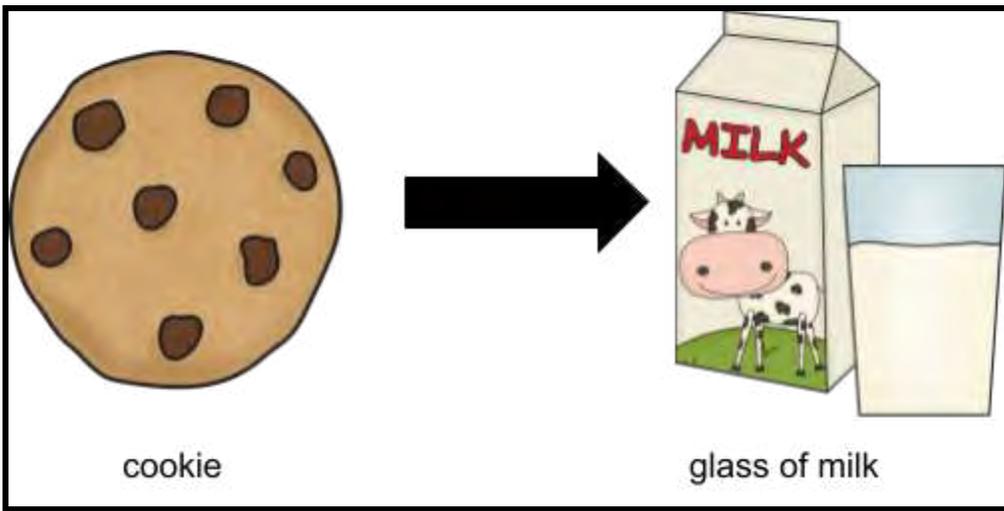
- Then ask the students to look at the three direction cards. Ask them what they notice about the direction cards laid out.
- Ask them if they can find the next direction card before we continue reading. (Next is “napkin → mirror”). Help them identify this and then read to the point of the mirror (“Then he’ll want to look in a mirror to make sure he doesn’t have a milk mustache.”)
- Continue finding the next card then reading and pausing to let the students add the correct student to the circle until all students are sequenced in the circle. Watch what the student does and do not help them unless they are stuck. If they can’t get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*
 - Say: *What do you see when you look at the pattern in the direction cards?*
 - Say: *I can read the page first and see if it will help you find the next card. (Once the student is confident again go back to the original of finding the next card then reading).*
 - Keep the guidance open-ended to see what they do. Don’t give them hints. Rather help them self-assess and think about what had worked previously.

Teacher Notes

Version 1 - Mouse and Cookie Picture Cards:

 <p>cookie</p>	 <p>glass of milk</p>	 <p>straw</p>	 <p>napkin</p>	 <p>mirror</p>
 <p>scissors</p>	 <p>broom</p>	 <p>mop and bucket</p>	 <p>nap</p>	 <p>bedtime story</p>
 <p>see the pictures</p>	 <p>paper and crayons</p>	 <p>pen</p>	 <p>scotch tape</p>	 <p>refrigerator</p>
 <p>glass of milk</p>				

Version 1 - Mouse and Cookie Direction Cards:





straw



napkin



napkin



mirror



mirror



scissors



scissors



broom



broom



mop and bucket



mop and bucket



nap



nap



bedtime story



bedtime story



see the pictures



see the pictures



paper and crayons



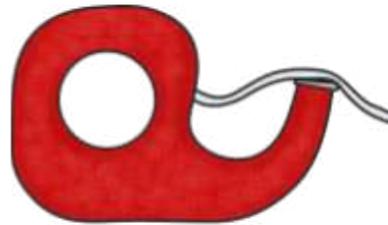
paper and crayons



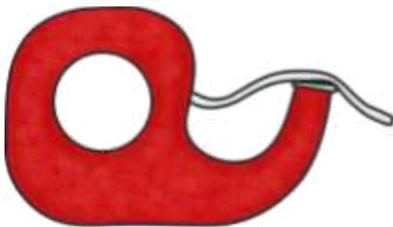
pen



pen



scotch tape



scotch tape



refrigerator



refrigerator



glass of milk

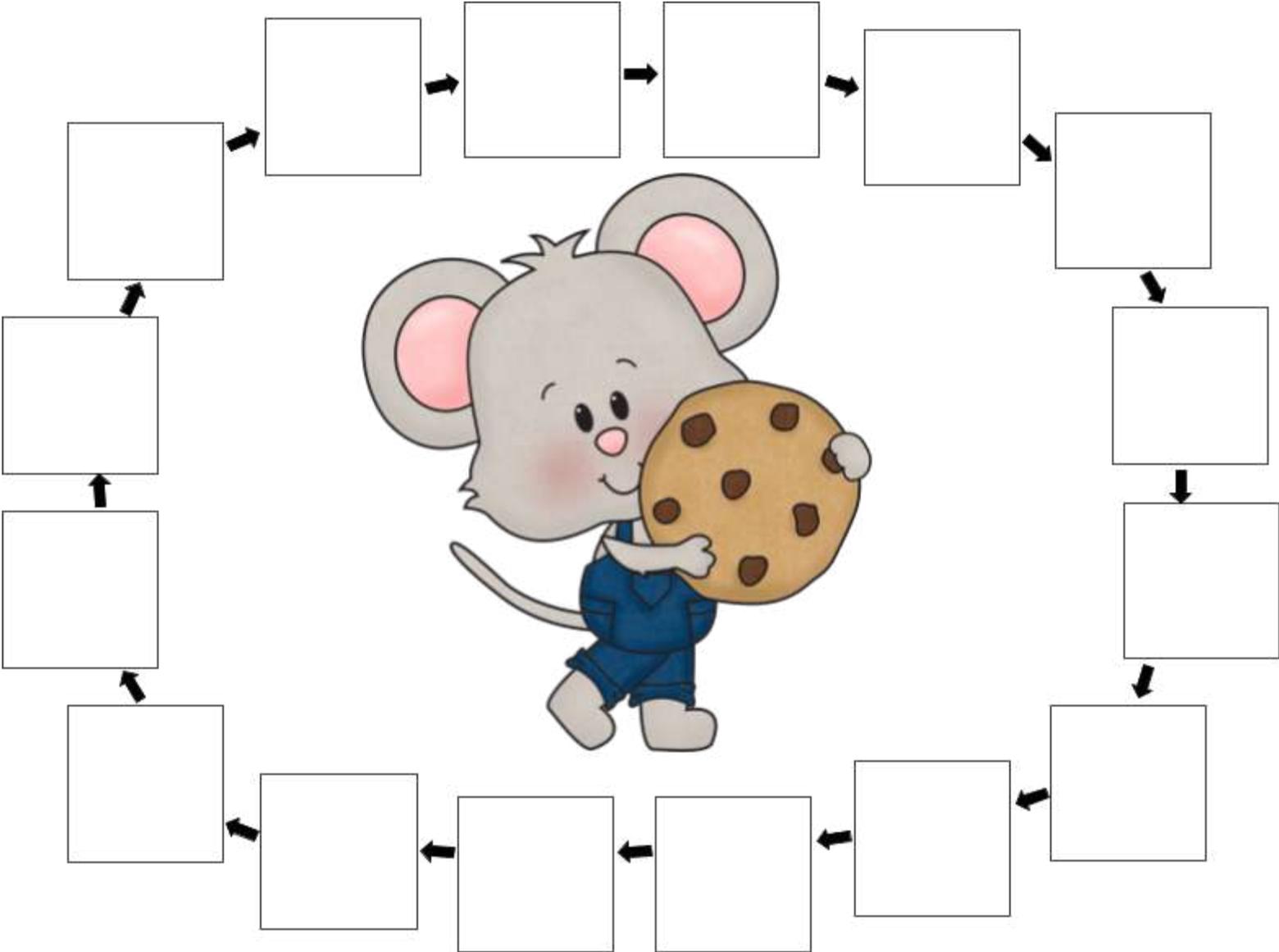


glass of milk

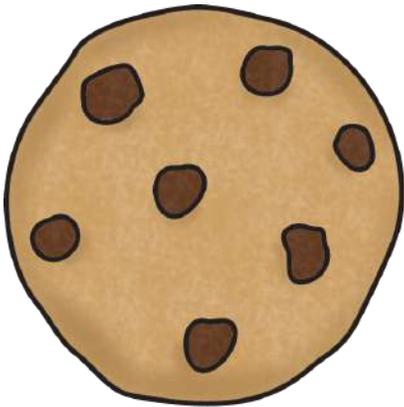


cookie

Version 1 - Mouse and Cookie Circle Diagram



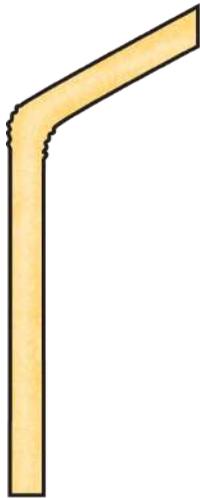
Version 1 - Mouse and Cookie Picture Cards for Embodied version (16 cards):



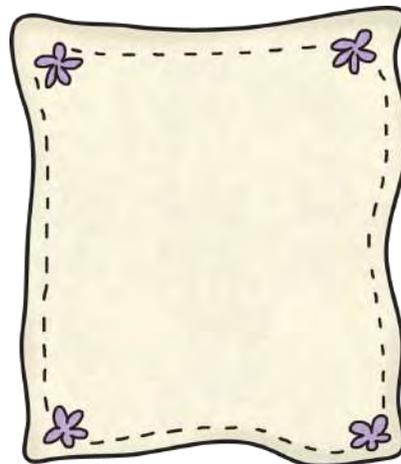
cookie



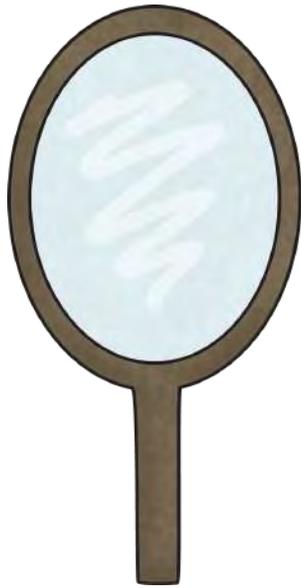
glass of milk



straw



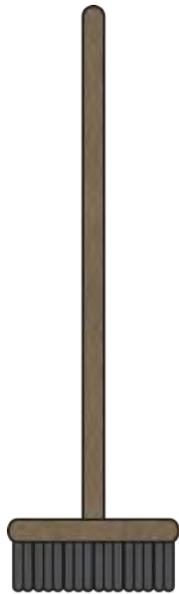
napkin



mirror



scissors



broom



**mop and
bucket**



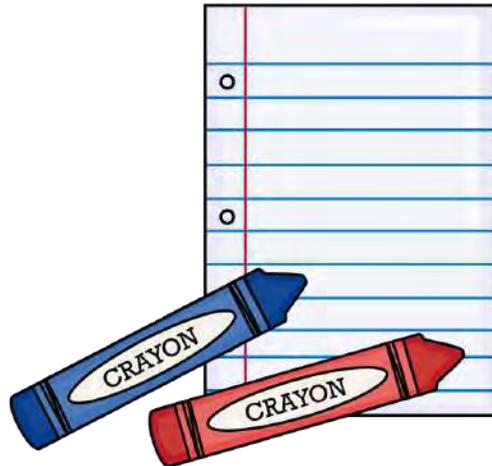
nap



bedtime story



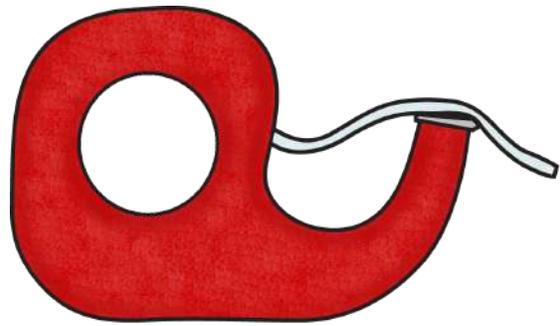
**see the
pictures**



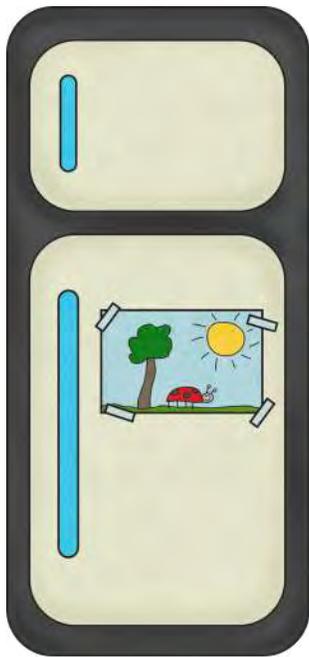
**paper and
crayons**



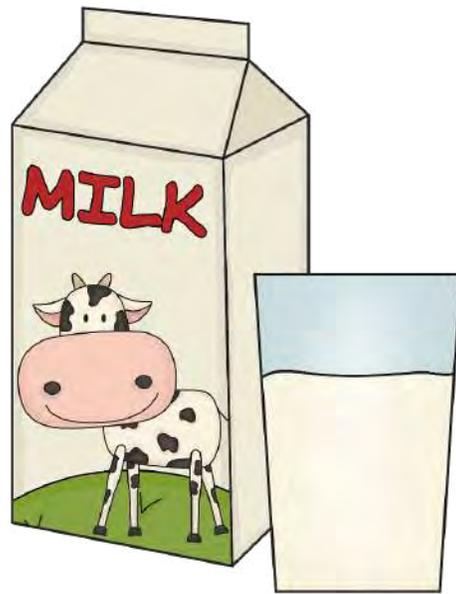
pen



scotch tape



refrigerator



glass of milk

Rethinking Circle Time
Sequencing/Conditionals:
Simple Conditional Logic + Literacy:
If You Give a Moose a Muffin



Lesson Summary	In this literacy and CT lesson, students work on sequencing and conditionals in a story using a book: <i>If You Give a Moose a Muffin</i> by Laura Numeroff. The book gives various directions and events on what will happen if a moose receives a muffin. Students will use their literacy skills to support the performance in computational thinking.
Grade Level	K-2
Subjects Addressed	Literacy, Computational Thinking
Standards	<ul style="list-style-type: none"> ● CCSS-ELA: <ul style="list-style-type: none"> ○ RL.K.7, RI.K.3, SL.K.2 ○ RI.1.3, SL.1.2 ○ RL.2.7 ● CS (CSTA): 1A-DA-06, 1A-DA-07, 1A-AP-09, 1A-AP-10, 1A-AP-12, 1A-AP-14
Learning Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Literacy: Identify the sequence of the events in the story. ● Computational Thinking: Present simple conditional logic using cards and a circle diagram.
Teacher Background and Content Information	<p>Sequencing: Sequencing in this lesson focuses on the reading strategy, which means to identify the components of the story and retell the events in order.</p> <p>Conditionals: In computational thinking, conditionals make decisions based on conditions. Depending on the conditions, different events will be performed. Conditionals are presented as "If... then..." statements. For example, If the score is greater than 100, then say "Congratulations!" Students should know that the next event will not be executed if the conditions are not fulfilled. This activity is meant to explore how sequencing in literacy supports students' performance of conditionals in computational thinking.</p>
Differentiate/ Inclusion	<p>For lower grades: The activities can be designed as collaborative group work instead of individual work.</p> <p>For upper grades: Encourage students to use long sentences to retell the story. Recreate a similar story and encourage students to lead the final step back to the first step. Include written activities.</p>
Materials	<p>Direction cards, picture cards, and a circle diagram.</p> <p>Online book resource: If You Give a Moose a Muffin</p>

Overall Description - Version 2: If You Give a Moose a Muffin

Launch/ Engage	<ol style="list-style-type: none">1. Discuss sequencing. Ask: <i>If I give you a muffin, what will you do then?</i> Let one student answer the question and ask another student based on the previous student's response to create a cause and effect chain. Make sure to use the "If... then..." statement. The teacher can write keywords, draw pictures, or ask students to write or draw on the blackboard depending on students' grade levels. This activity can prepare students for the Explore activity.2. Introduce the book. Say: <i>Today I want you to help me with something. We are going to read the book, If You Give a Moose a Muffin by Laura Numeroff, do you know that book? Have you read it before?</i>
Explore	<ol style="list-style-type: none">1. Act out the story. In this activity, students will act out the story. Say: <i>We are going to act out the actions in the book, If You Give a Moose a Muffin. Each of you will be given a picture card to hang around your neck that represents a part of the story. The book will help us figure out what order we should put ourselves in.</i>2. Give directions. Say: <i>As I read it, put yourselves in the circle in the order your item comes in the book.</i>3. Read the book aloud.<ul style="list-style-type: none">○ Start to read the book and pause after the third page ("If you give a moose a muffin, he'll want some jam to go with it. So you'll bring out some of your mother's homemade blackberry jam") so that the students can find the corresponding people to start the circle.○ Then read the next page ("When he's finished eating the muffin, he'll want another. And another. And another. When they are all gone, he'll ask you to make more.") and again pause so that the students can find the corresponding student to add to the circle.○ Then read one more page ("You'll have to go to the store to get some muffin mix.") and again pause so that the students can find the corresponding student to add to the circle.○ Ask them if they can find the next direction card before we continue reading. (Next is "muffin mix → sweater"). Help them identify this and then read to the point of the sweater ("When he opens the door and feel how chilly it is, he'll ask to borrow a sweater.")○ Continue finding the next card then reading and pausing to let the students add the correct student to the circle until all students are sequenced in the circle. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated here are some different ways to help:<ul style="list-style-type: none">■ Say: <i>Tell me what you are thinking.</i>■ Say: <i>I can read the page first and see if it will help you find the next card. (Once the student is confident again go back to the original of finding the next card then reading).</i>■ Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously.4. Retell the story using the "If...then..." statement. Invite students to take turns retelling the story. They should use a short sentence with the "If... then..." statement. For example, <i>If a moose gets a muffin, then he will ask for some jam.</i>

Summarize/
Explain

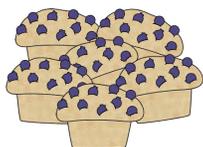
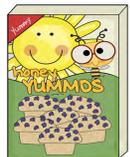
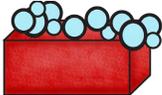
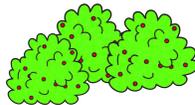
1. **Reflect on the activities.** Ask:
 - *How do you feel about this activity?*
 - *Which part of the activity do you think is the most challenging one?*
 - *Did you encounter any problem during the activities? How did you solve them?*
2. **Link the concept of reading strategy - sequencing with computational thinking - conditionals.** Ask:
 - *This story has a beginning and end. Take a look at the circle we made and tell me what is the beginning and what is the end. Are they the same?*
 - *What if I change the story? For example, if I give a moose a pancake, do you think the story will be the same? If the moose didn't get a muffin, he probably wouldn't ask for some jam to go with it, right? The purpose of this question is to clarify the logic of the conditionals.*

Apply/
Extend

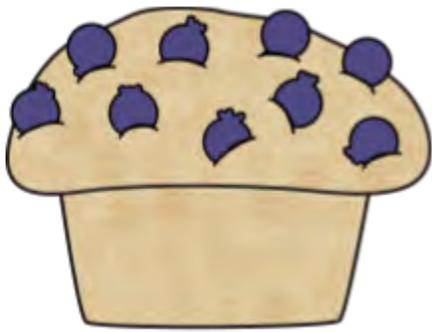
1. **Introduce the direction cards, picture cards, and the circle diagram.** In this activity, the teacher can decide whether this is individual or collaborative group work based on students' level. Make sure the direction cards are out in front of the student but mixed up and have the sequence cards and circle diagram in two piles off to the side. Ask:
 - *What do you think about these direction cards?*
 - *Do you find it familiar when you see the pictures on it?*
 - *What do you think the arrows mean?*
 - *What can you tell me about this circle diagram? Have you seen anything like it before?*
2. **Introduce the task.** Say: *This time, I am going to give you the direction cards and see if you can put them in the correct order by placing the picture cards in the circle diagram. Then we will read the story together and see how it fits with the order we came up with.*
3. **Give directions.** Say: *Can you use the direction cards (point) to figure out the order that the picture cards go in on the circle diagram before we read the story? Give students 5 - 10 minutes to complete the task. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated:*
 - Say: *Tell me what you are thinking.*
 - Say: *What do you see when you look at the pattern in the direction cards?*
 - Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously.
4. **Check with other students (optional).** Have students visit other groups/students' work and observe if others' works are the same. Give students opportunities to self-correct mistakes.
5. **Read the story aloud.** Once they have finished putting the cards in order, then Say: *Now we are going to read the story and as we read I want you to check what you have in your circle diagram to see if it matches the story.*

Teacher Notes

Version 2 - Moose and Muffin Picture Cards:

 <p>muffin</p>	 <p>jam</p>	 <p>more muffins</p>	 <p>muffin mix</p>	 <p>sweater</p>
 <p>needle and thread</p>	 <p>old socks</p>	 <p>cardboard and paints</p>	 <p>bed sheet</p>	 <p>soap</p>
 <p>clothesline</p>	 <p>bushes</p>	 <p>jam</p>		

Version 2 - Moose and Muffin Direction Cards:



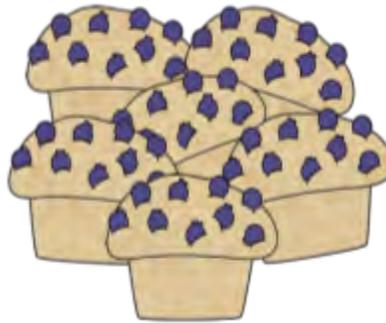
muffin



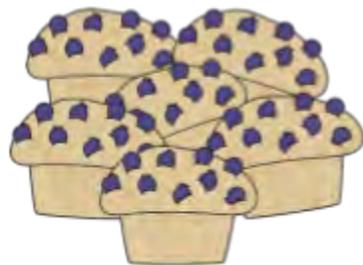
jam



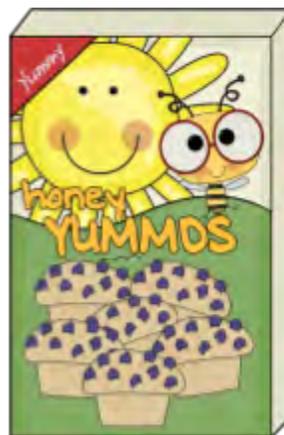
jam



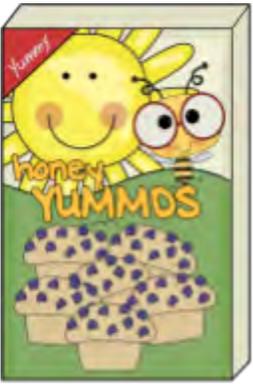
more muffins



more muffins



muffin mix



muffin mix



sweater



sweater



needle and thread



needle and thread



old socks



old socks



cardboard and paints



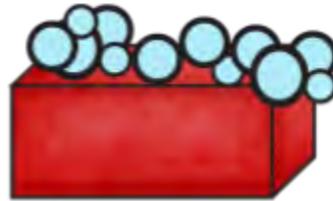
cardboard and paints



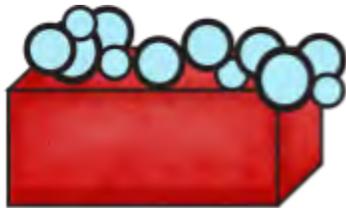
bed sheet



bed sheet



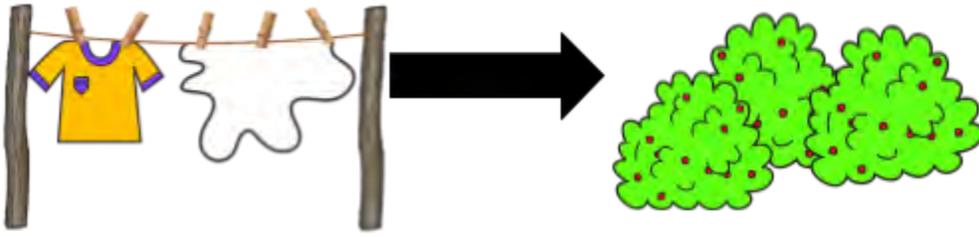
soap



soap

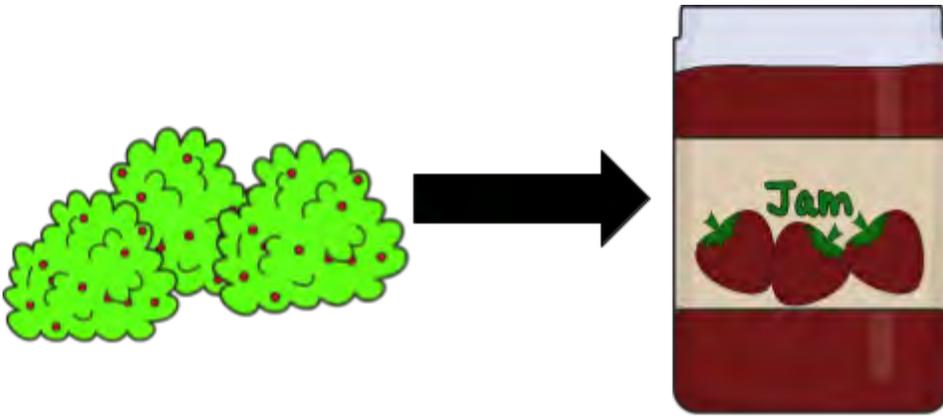


clothesline



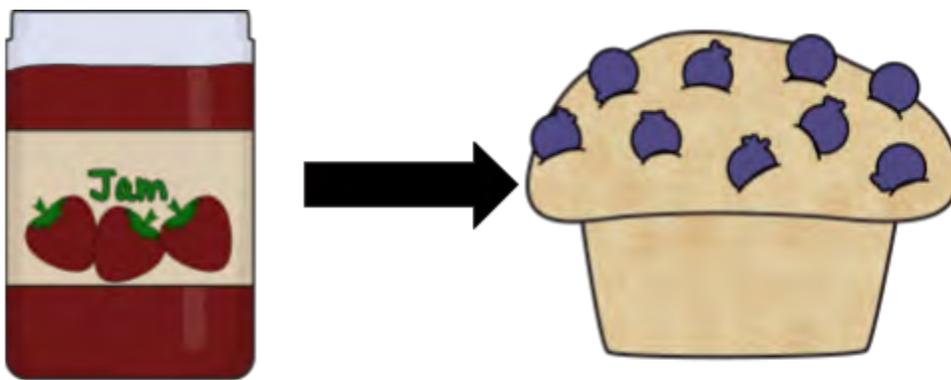
clothesline

bushes



bushes

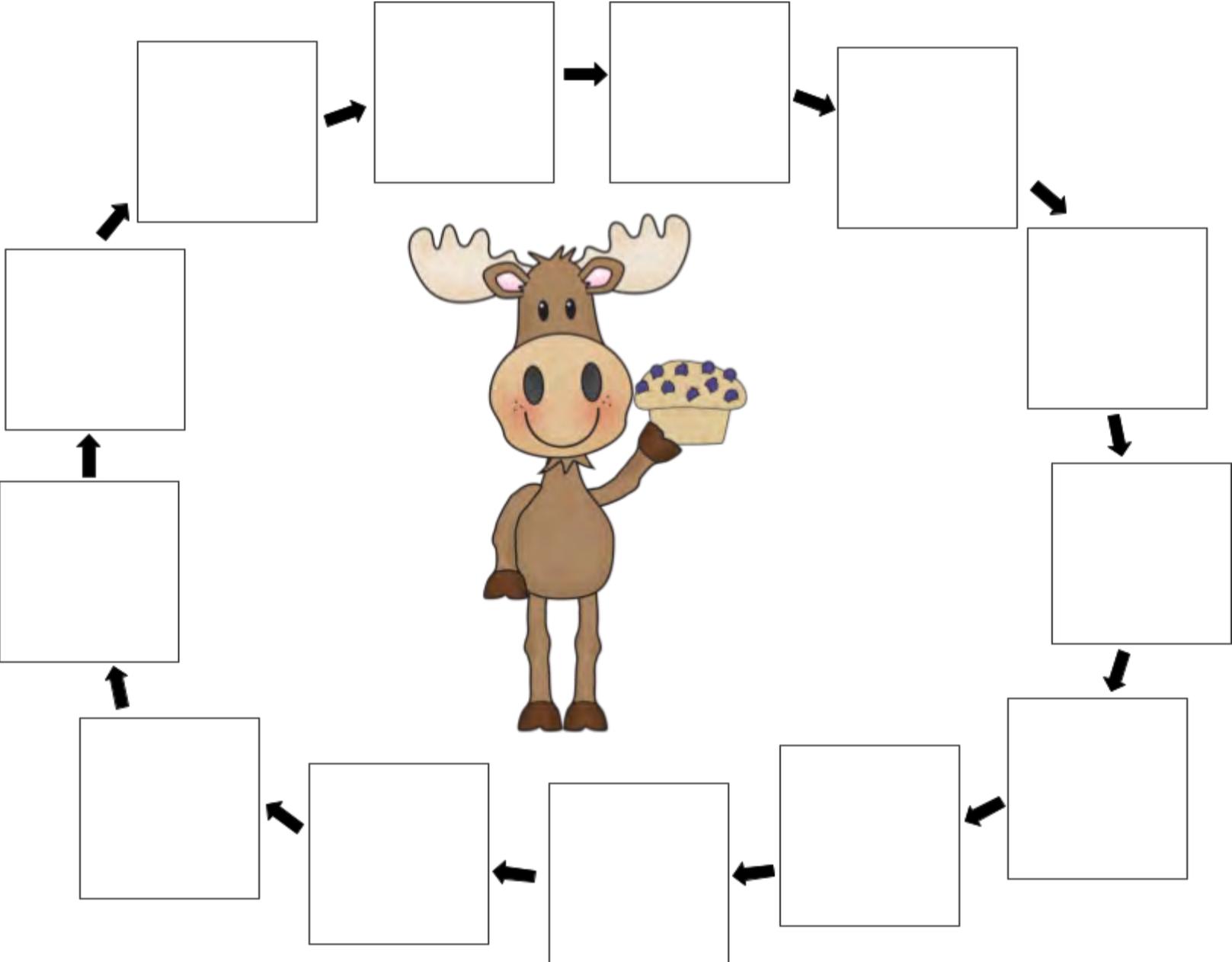
jam



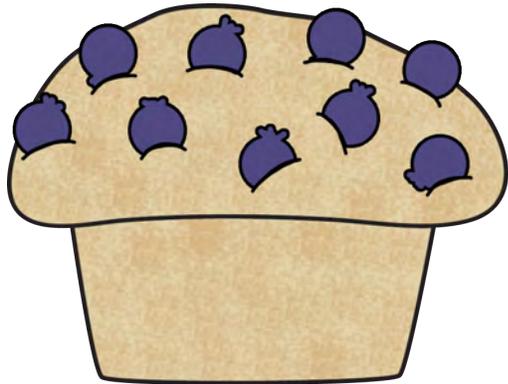
jam

muffin

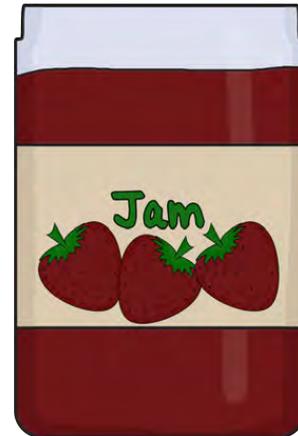
Version 2: Moose and Muffin Circle Diagram



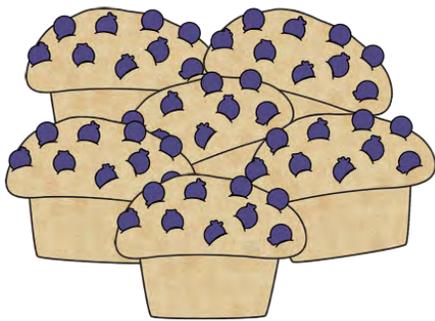
Version 2 - Moose and Muffin Picture Cards for the Embodied Version (13 cards):



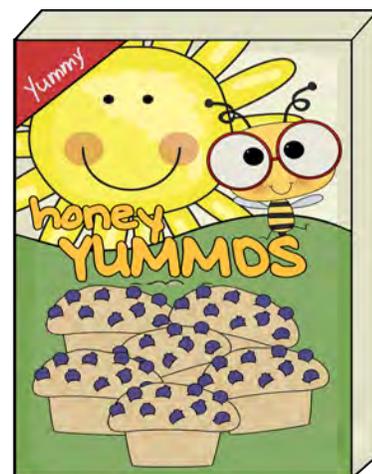
muffin



jam



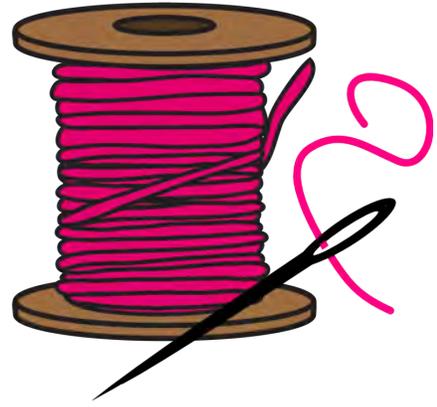
**more
muffins**



muffin mix



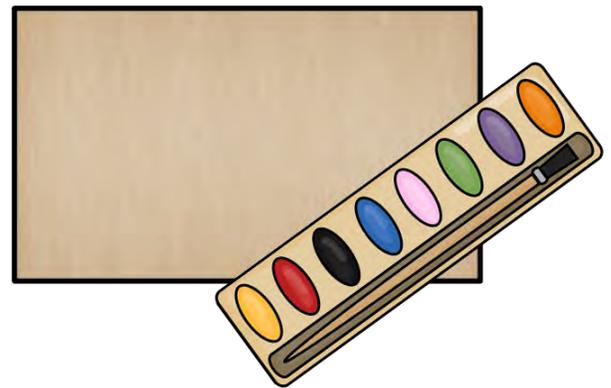
sweater



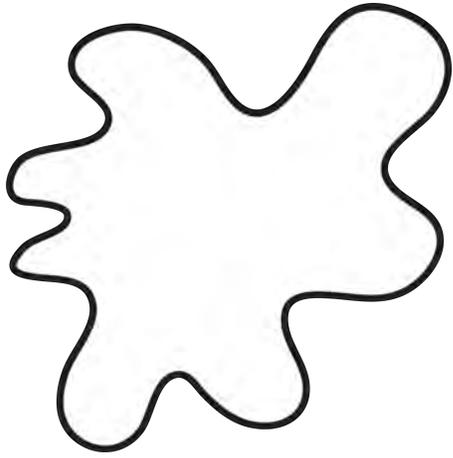
**needle and
thread**



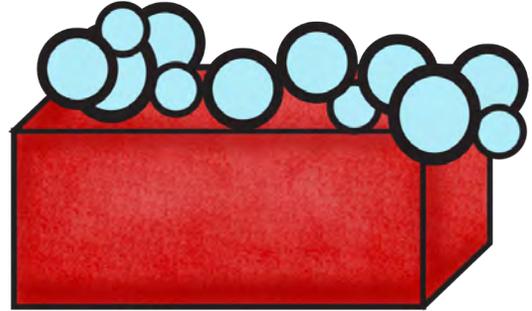
old socks



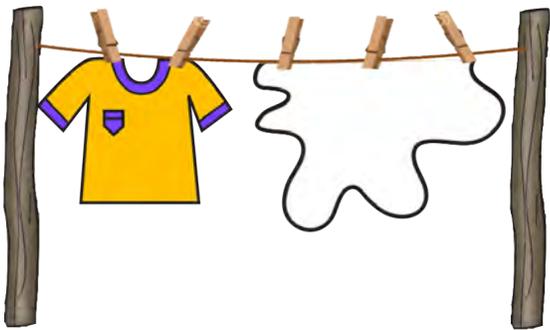
**cardboard
and paints**



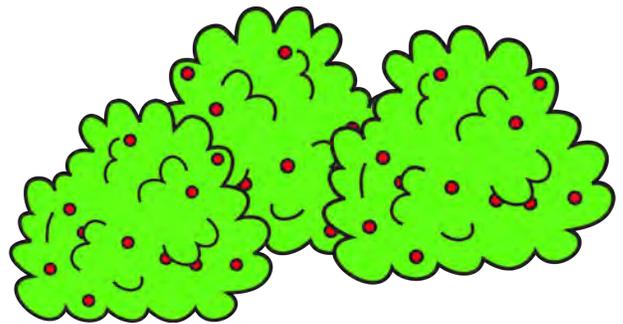
bed sheet



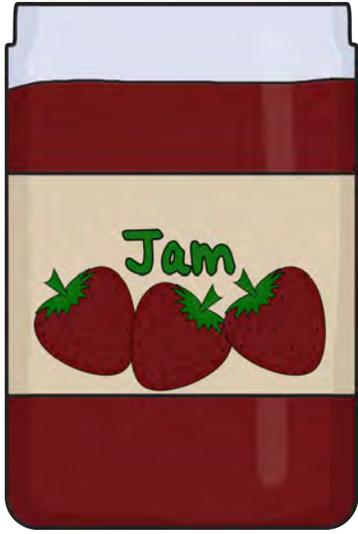
soap



clothesline



bushes



jam



Rethinking Circle Time
Sequencing/Conditionals:
Simple Conditional Logic + Literacy:
If You Give a Pig a Pancake

<p>Lesson Summary</p>	<p>In this literacy and CT lesson, students work on sequencing and conditionals in a story using a book: <i>If You Give a Pig a Pancake</i> by Laura Numeroff. The book gives various directions and events on what will happen if a pig receives a pancake. Students will use their literacy skills to support the performance in computational thinking.</p>
<p>Grade Level</p>	<p>K-2</p>
<p>Subjects Addressed</p>	<p>Literacy, Computational Thinking</p>
<p>Standards</p>	<ul style="list-style-type: none"> ● CCSS-ELA: <ul style="list-style-type: none"> ○ RL.K.7, RI.K.3, SL.K.2 ○ RI.1.3, SL.1.2 ○ RL.2.7 ● CS (CSTA): 1A-DA-06, 1A-DA-07, 1A-AP-09, 1A-AP-10, 1A-AP-12, 1A-AP-14
<p>Learning Objectives</p>	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Literacy: Identify the sequence of the events in the story. ● Computational Thinking: Present simple conditional logic using cards and a circle diagram.
<p>Teacher Background and Content Information</p>	<p>Sequencing: Sequencing in this lesson focuses on the reading strategy, which means to identify the components of the story and retell the events in order.</p> <p>Conditionals: In computational thinking, conditionals make decisions based on conditions. Depending on the conditions, different events will be performed. Conditionals are presented as "If... then..." statements. For example, If the score is greater than 100, then say "Congratulations!" Students should know that the next event will not be executed if the conditions are not fulfilled. This activity is meant to explore how sequencing in literacy supports students' performance of conditionals in computational thinking.</p>
<p>Differentiate/ Inclusion</p>	<p>For lower grades: The activities can be designed as collaborative group work instead of individual work.</p> <p>For upper grades: Encourage students to use long sentences to retell the story. Recreate a similar story and encourage students to lead the final step back to the first step. Include written activities.</p>
<p>Materials</p>	<p>Direction cards, picture cards, and a circle diagram. Online book resource: If You Give a Pig a Pancake</p>

Overall Description - Version 3: If You Give a Pig a Pancake

Launch/ Engage

1. **Discuss sequencing.** Ask: *If I give you a pancake, what will you do then?* Let one student answer the question and ask another student based on the previous student's response to create a cause and effect chain. Make sure to use the "If... then..." statement. The teacher can write keywords, draw pictures, or ask students to write or draw on the blackboard depending on students' grade levels. This activity can prepare students for the Explore activity.
2. **Introduce the book.** Say: *Today I want you to help me with something. We are going to read the book, If You Give a Pig a Pancake by Laura Numeroff, do you know that book? Have you read it before?*
3. **Read the book aloud.** Remind students to be aware of how the events are sequenced in the story.

Explore

1. **Introduce the direction cards.** After reading the story, students will start to use cards to explore sequencing and conditionals. In this activity, the teacher can decide whether this is individual or collaborative group work based on students' level. Make sure the direction cards are out in front of the students but mixed up. Ask: *What do you think about these direction cards? Do you find it familiar when you see the pictures on it? What do you think the arrows mean?*
2. **Introduce the activity for the direction cards.** Say: *I am going to need you to help me to identify the order of the direction cards based on the book we read.* In this activity, students will lay out the direction cards in the way that makes sense to them. Give students 5 - 10 minutes to complete the task. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*
 - Say: *What do you see when you look at the pattern in the direction cards?*
 - Say: *I can read the page first and see if it will help you find the next card.* (Once the student is confident again go back to the original of finding the next card then reading).
 - Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously.
3. **Have students share their story (optional).** The teacher can ask a student/one group of students to share the story based on their sequence of direction cards. Ask: *Why did you decide to lay out the direction cards in this way? Do you think the direction cards help you to remember the story?*
4. **Introduce the picture cards and the circle diagram.** Ask: *What do you think we are going to do next? What can you tell me about this circle diagram? Have you seen anything like it before?*
5. **Introduce the activity for the picture cards and the circle diagram.** Say: *Now that we have the direction cards laid out in the correct order, let's put the picture cards into the correct order on the circle diagram.* Give students 5 - 10 minutes to complete the task. Watch what the student does and do not help them unless they are stuck. If they can't get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*

- Say: *What do you see when you look at the pattern in the direction cards?*
 - Say: *I can read the page first and see if it will help you find the next card.* (Once the student is confident again go back to the original of finding the next card then reading).
 - Keep the guidance open-ended to see what they do. Don't give them hints. Rather help them self-assess and think about what had worked previously.
6. **Check with other students (optional).** Have students visit other groups/students' work and observe if others' works are the same. Give students opportunities to self-correct mistakes.
 7. **Retell the story using the "If...then..." statement.** Invite students or groups to take turns retelling the story. They should use a short sentence with the "If... then..." statement. For example, *If a pig gets a pancake, then she will want some syrup to go with it.*

Summarize/
Explain

1. **Reflect on the activities.** Ask:
 - *How do you feel about this activity?*
 - *Which part of the activity do you think is the most challenging one?*
 - *Did you encounter any problem during the activities? How did you solve them?*
2. **Link the concept of reading strategy - sequencing with computational thinking - conditionals.** Ask:
 - *Why do you think you can remember the story so clearly?*
 - *If I gave you the picture cards and the circle diagram before the direction cards, would it be more challenging for you to remember the sequence of the story?*
 - *This story has a beginning and end. Take a look at your circle diagram and tell me what is the beginning and what is the end. Are they the same?*
 - *What if I change the story? For example, if I give a mouse a muffin, do you think the story will be the same? If the mouse didn't get a cookie, he probably wouldn't ask for a glass of milk to go with it, right? The purpose of this question is to clarify the logic of the conditionals.*

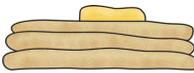
Apply/
Extend

1. **Act out the story.** In this activity, students will act out the story. Say: *We are going to act out the actions in the book, If You Give a Pig a Pancake. Each of you will be given a picture card to hang around your neck that represents a part of the story. I also have some direction cards that I am going to put here for you to see. The book and the direction cards will help us figure out what order we should put ourselves in.*
2. **Give directions.** Say: *As I read it, put yourselves in the circle in the order your item comes in the book.*
3. **Read the book aloud.**
 - Start to read the book and pause after the second page ("If you give a pig a pancake, she'll want some syrup to go with it.") so that the students can find the direction card and then find the corresponding people to start the circle.
 - Then read the next page ("You'll give her some of your favorite maple syrup. She'll probably get all sticky, so she'll want to take a bath.") and again pause so that the students can find the direction card and set it out next to the first card. Then find the corresponding student to add to the circle.
 - Then read one more page ("She'll ask you for some bubbles") and again pause so that the students can find the direction card and set it next to the

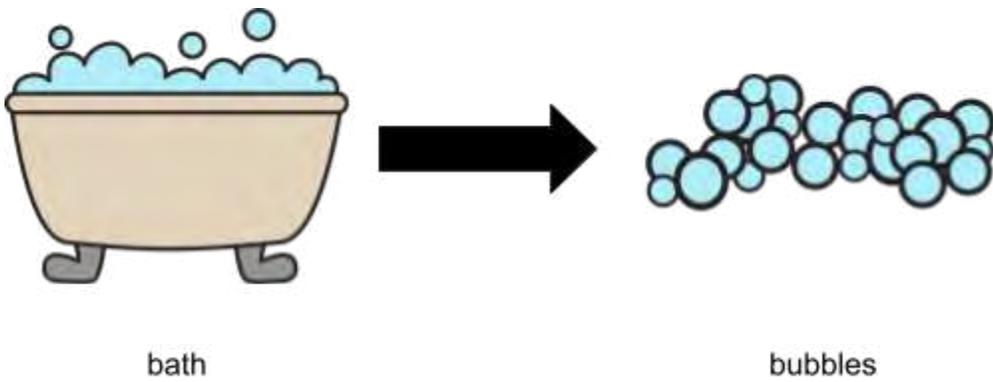
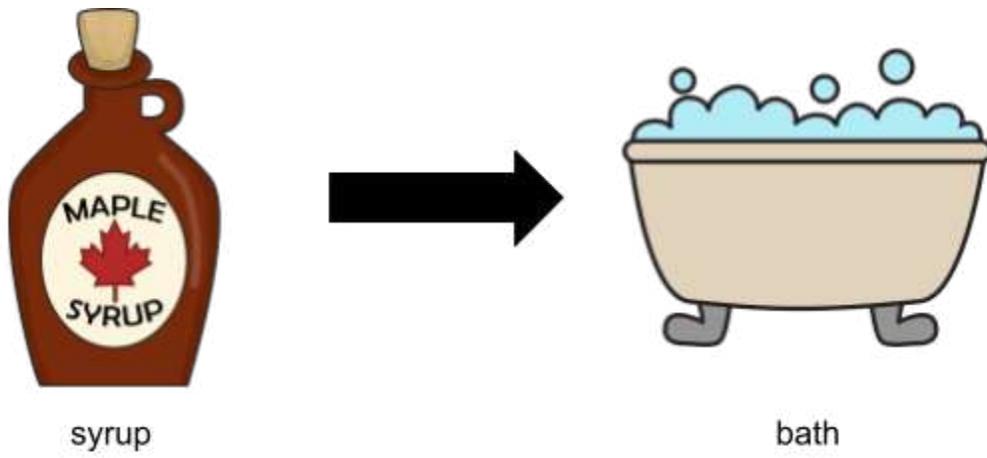
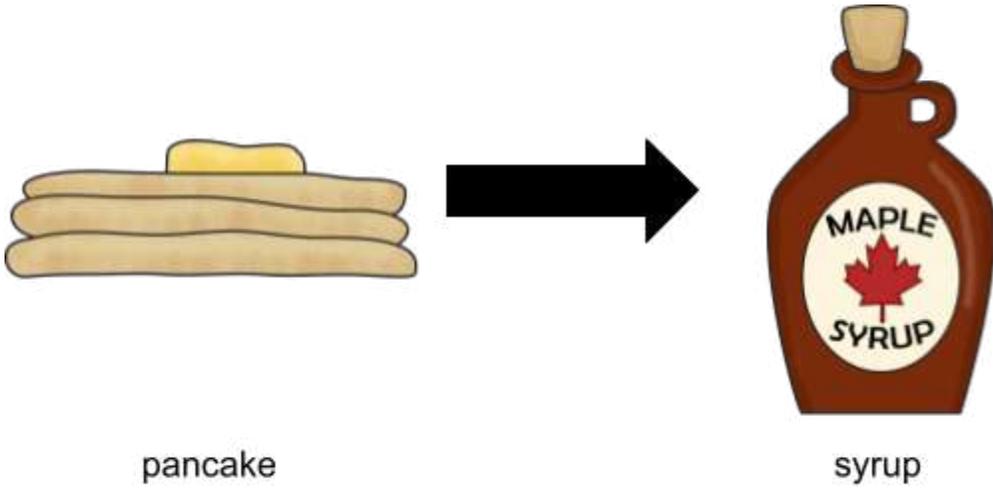
- other two cards. Then find the corresponding student to add to the circle.
- Then ask the students to look at the three direction cards. Ask them what they notice about the direction cards laid out.
 - Ask them if they can find the next direction card before we continue reading. (Next is “bubbles → rubber duck”). Help them identify this and then read to the point of her family (“The duck will remind her of the farm where she was born. She might feel homesick and want to visit her family”).
 - Continue finding the next card then reading and pausing to let the students add the correct student to the circle until all students are sequenced in the circle. Watch what the student does and do not help them unless they are stuck. If they can’t get anywhere or become frustrated here are some different ways to help:
 - Say: *Tell me what you are thinking.*
 - Say: *What do you see when you look at the pattern in the direction cards?*
 - Say: *I can read the page first and see if it will help you find the next card. (Once the student is confident again go back to the original of finding the next card then reading).*
 - Keep the guidance open-ended to see what they do. Don’t give them hints. Rather help them self-assess and think about what had worked previously.

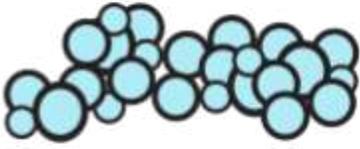
Teacher Notes

Version 3 - Pig and Pancake Picture Cards:

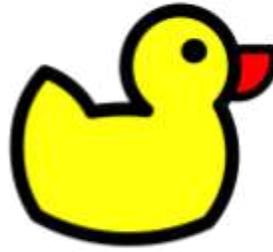
 <p>pancake</p>	 <p>syrup</p>	 <p>bath</p>	 <p>bubbles</p>	 <p>rubber duck</p>
 <p>family</p>	 <p>suitcase</p>	 <p>tap shoes</p>	 <p>something special to wear</p>	 <p>music</p>
 <p>camera</p>	 <p>more pictures</p>	 <p>envelopes and stamps</p>	 <p>mailbox</p>	 <p>wood, hammer, nails</p>
 <p>wallpaper and glue</p>	 <p>syrup</p>			

Version 3 - Pig and Pancake Direction Cards:

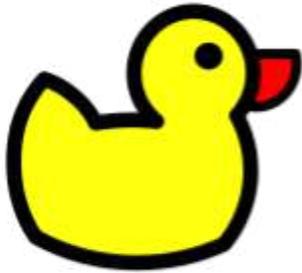




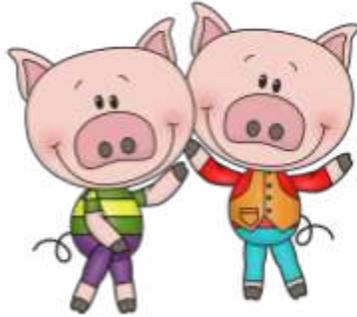
bubbles



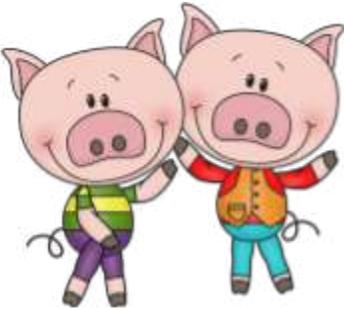
rubber duck



rubber duck



family



family



suitcase



suitcase



tap shoes



tap shoes



something special to wear



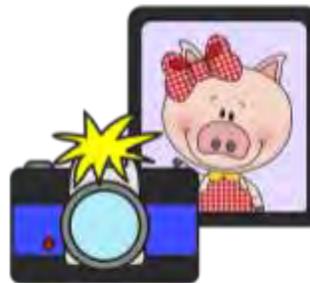
something special to wear



music



music



camera



camera



more pictures



more pictures



envelopes and stamps



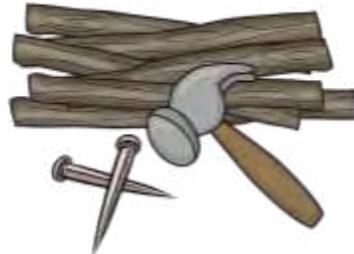
envelopes and stamps



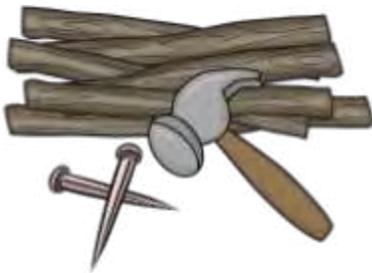
mailbox



mailbox



wood, hammer, and nails



wood, hammer, and nails



wallpaper and glue



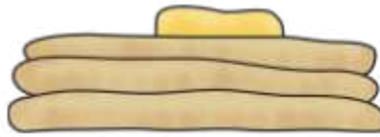
wallpaper and glue



syrup

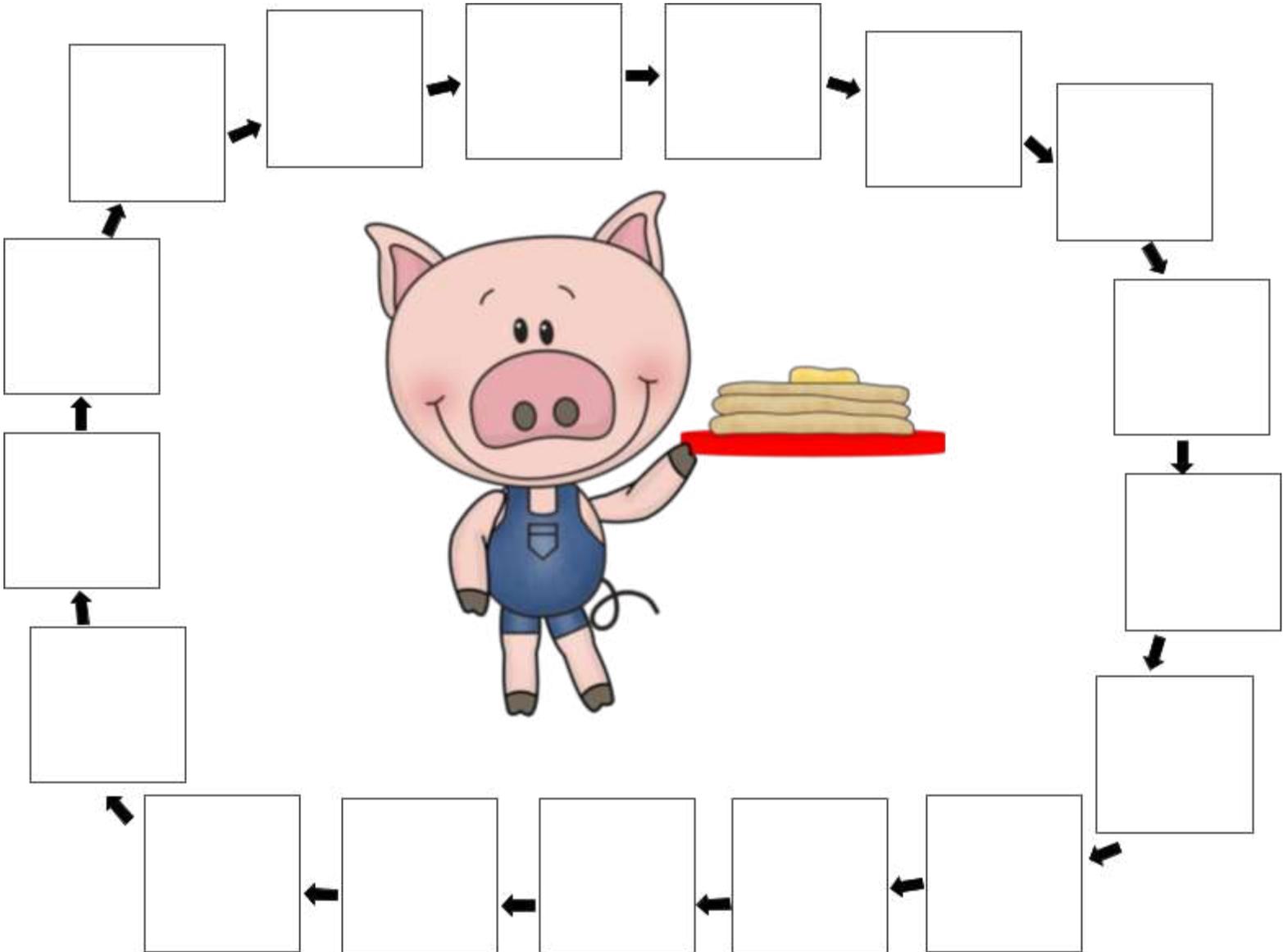


syrup

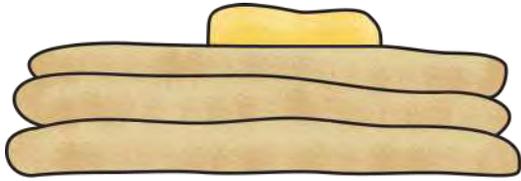


pancake

Version 3: Pig and Pancake Circle Diagram



Pig and Pancake picture cards for embodied version (17 cards):



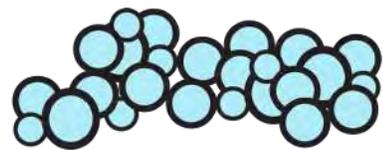
pancake



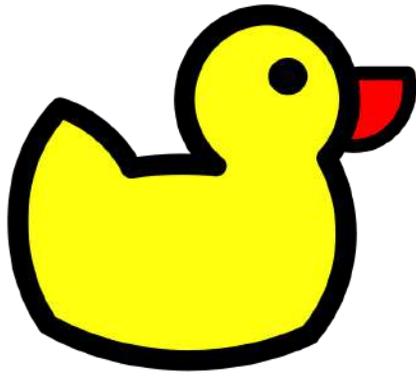
syrup



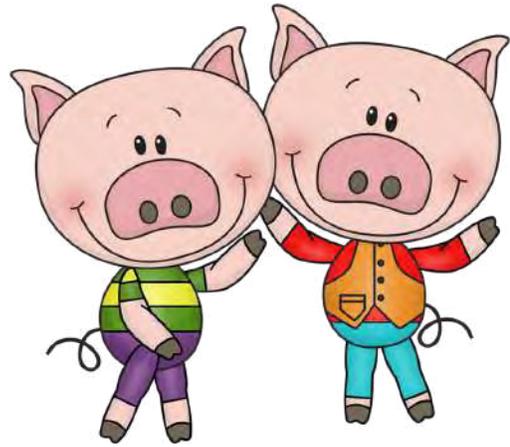
bath



bubbles



rubber duck



family



suitcase



tap shoes



**something
special to wear**



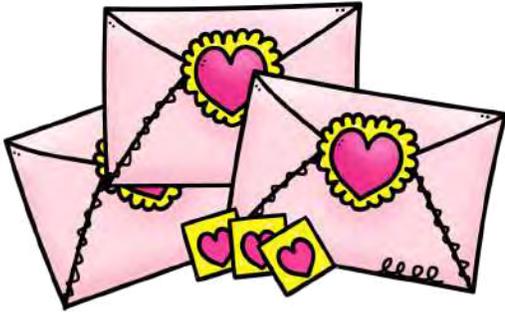
music



camera



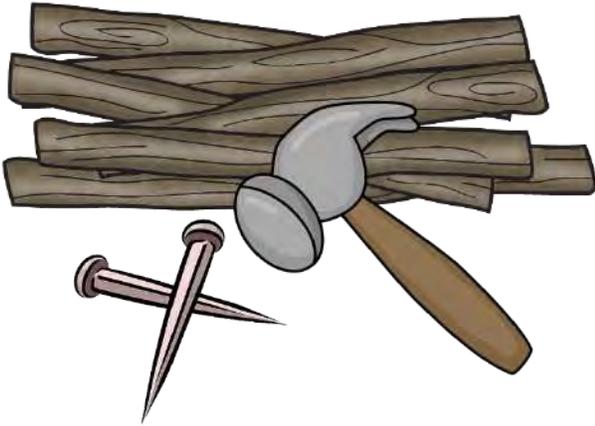
more pictures



**envelopes and
stamps**



mailbox



**wood,
hammer, nails**



**wallpaper and
glue**



syrup