

Lesson 6: Order Matters

Powerful Ideas of Computer Science	Algorithms, Hardware/Software, Representation, Debugging
Powerful Ideas of Literacy	Sequencing, Editing and Audience Awareness
PTD	Communication
Palette of Virtues	Open-Mindedness, Patience
Children will be able to...	<ul style="list-style-type: none"> ● Define algorithm. ● Identify the importance of order in algorithms.
Vocabulary	<ul style="list-style-type: none"> ● Algorithm: instructions for a robot or computer that are done in order ● Order: the way a list of things is done
Teacher Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Read lesson plan. <input type="checkbox"/> Print Lesson 6 Design Journal for children, or have Full Design Journals for each child. <input type="checkbox"/> Open Lesson 6 Check for Understanding

Warm Up

- **Program the Teacher** (*Suggested Time: 10 minutes*)
 - Tell children that the teacher will now be the computer and they will get to program them! Remind them that they need to say all the steps in the right **order**!
 - Children will be responsible for verbally directing their teacher to special destinations in the classroom (e.g., to a bookcase or a closet) or doing a task (e.g., making a sandwich).
 - The instructions the children give to the teacher must be specific. For example, children should not simply say, “move forward,” but should instead say, “move forward __ steps.” Instead of, “put the peanut butter on the bread,” children should say “Open the peanut butter jar and use your knife to scoop the peanut butter onto the bread.”
 - The teacher should “misinterpret” the children’s answers based on lack of specificity. For example, if the child tells the teacher to turn, the teacher can spin in a full circle.

- Discuss how important it is to be specific and how important order is in programming.

Opening Tech Circle

- **Human and Computer Language** (*Suggested Time: 5 minutes*)
 - Computer language is all about giving instructions, or telling what to do. When a human is talking to another human they can ask questions, tell stories, give instructions, tell jokes, etc. But when a human is talking to a computer they can only give instructions.
 - Computer instructions are called **algorithms**.
 - Explain that algorithms are a list of steps in the right order.
 - Go over an example with the children: Washing your hands.
 - Instructions: If a human were telling another human to wash their hands, they'd know what to do!
 - Algorithm: Now pretend a computer has hands! If a human were telling a computer to wash their hands, the computer would have no idea what to do! You'd need to tell them each step in the right order.
 - Walk to the sink
 - Turn on the water
 - Put your hands under the water
 - Put soap on your hands
 - Scrub and rinse
 - Take hands out of water
 - Turn off sink
 - Dry hands

KIBO Time

- **Order Matters** (*Suggested Time: 10 minutes*)
 - Show children the Begin, Forward, and End Blocks, and ask what they notice about the shapes of the blocks.
 - Talk about how the Begin and End Blocks can only be at the beginning and end of a program because they have either only a peg or hole. Explain that if we give KIBO a program with these blocks in the wrong order, KIBO will be confused and not read the program.
 - Show children the following two programs: “Begin, Forward, Spin, End” and “Begin, Spin, Forward, End.” Ask what they think the two programs will do differently.
 - Remind children of the importance of order within the steps of the program to explain to KIBO what to do.

Word Time

- **Written Algorithms** (*Suggested Time: 10 minutes*)
 - [Lesson 6 Design Journal](#)

- Remind children how important it is to put things in the correct order when giving instructions. Have children open their [Design Journals](#) to [Lesson 6](#) and write or draw instructions for brushing their teeth.

Lesson 6 Check for Understanding: Check your children's understanding of the new concepts they've just learned. Read each question to the children. Have children hold up 1, 2, or 3 fingers (corresponding to the first, second, or third choice). Stop and re-explain concepts as needed.

Closing Tech Circle

- **Sharing Circle** (*Suggested Time: 10 minutes*)
 - Have children share the instructions they created.