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How Robots Move- Introduction to Coding!

Lesson Plan Focus:

Technology Literacy, Math

Objectives:

Children will be introduced to a new type of robot (Code & Go Robot Mouse), which moves very differently than the Hex Bugs they've previously been exposed to. They will practice using directional language such as first, next, right, left, straight, backwards, etc. They will build on teamwork skills such as listening to the ideas of others, sharing their own and taking turns.

Vocabulary:

CODE- A set of instructions that tell a computer, website, digital interface, digital toy or robot what to do.

CODING- The process of designing, writing and evaluating the code.

PROGRAM- Provide a computer or machine with coded instructions for automatic performance of a particular task.

Standards:

30.C.ECb Demonstrate persistence and creativity in seeking solutions to problems.

31.B.ECc Use socially appropriate behavior with peers and adults, such as helping, sharing, and taking turns.

7.B.ECa Practice estimating in everyday play and everyday measurement problems.

9.B.ECa Show understanding of location and ordinal position.

11.A.ECe Use mathematical and computational thinking.

13.B.ECb Become familiar with technological tools that can aid in scientific inquiry.

Materials:

- Code & Go Robot Mouse + Action Cards
- Grid Mats (optional)
- Rectangular Blocks
- Camera/i-phone/i-pad for photo documentation
- Hex Bug

Pre-Planning & Preparation:**(15 min.)**

Test it out first! Turn the mouse on to make sure a battery change is not required. Try it out on a couple different surfaces to see where it will work best. (It doesn't move very well on certain types of carpet!) Build a couple practice mazes and run the mouse through so you'll know what to expect when presenting it to the children.

Instruction:**Part 1 (5 min.)**

- Start out with the full group in a circle on the carpet. Have all the materials for the lesson on the carpet in front of you.
- Hold up the Hex Bug and ask them to tell you about it, checking for previous knowledge. Next, hold up the mouse and do the same.
- Get them excited and tell them the mouse is a robot too and can also move when turned on! Turn on the Hex Bug, asking students to notice how it moves. Dramatically, switch on the mouse and ask students to notice how it moves. It doesn't!
- Tell them the mouse is a different kind of robot and has to be told what to do. Point out the colored buttons/arrows, showing how they point in each different direction.

Part 2 (5 min.)

- Code the teacher! Tell the children they must give you directions to a specific place in the classroom. Break it down so they give you one direction at a time. Ex. I remained seated until someone said "first, you

have to stand up!". If a child gave me the direction to "go straight" I would only take one step forward.

- When you're back on the carpet, demonstrate what you will be doing with the small groups during center time. Build one simple maze and ask the children to "give the mouse directions" through the maze. As they tell you one step at a time, hold up the action cards and model laying them in order. Explain that the line of cards is our 'code' and we must 'program' the mouse by entering the code exactly. Model how to carefully program the mouse, having the children say each direction with you.
- Test it out and discuss!

Part 3 (50 min.)

- During center time, facilitate a small group of 3-4 children at a time. One child builds a maze, one child oversees action cards, one child programs the mouse, etc. How often they switched roles depended on the group of children at what worked for them 😊
- Repeat during centers the following day, ensuring all students have at least one turn with teacher guided exploration.



Home Connection:

A description of this lesson was posted in my weekly classroom newsletter which is sent to all families on Friday afternoon. Photos of the activity will be placed in the children's portfolios.