

Unplugged Intro to Coding for Kindies

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LEVEL	SUBJECTS	PROVINCES / TERRITORIES	TOOL
Pre K - K		Across Canada	Unplugged

Overview

This is a three part lesson plan focusing on the language of location, which is a great way to introduce basic coding concepts. No technology needed!

Prep Work

- Check-out "Peg+ Cat: The Penguin Problem" by Jennifer Oxley and Billy Aronson. ISBN-13: 978-0763690731 (Youtube Read Out Loud here: bit.ly/peg-and-cat)
- Collect chart paper, masking tape, an easel and a marker.
- Tape a grid onto your carpet using masking tape. Each cell should be big enough that a student can stand in it. A 5x5 grid should work well.
- Fold two pieces of paper in half. One piece of paper should say "start", while the other paper says "finish" or "end"
- Place manipulatives on your grid as "barriers". For example, a stuffed animal or a ball-something that can sit in a cell.

Key Coding Concepts

- ✓ Algorithms
- ✓ Debugging
- ✓ Sequences

Terminology

Algorithms

A step-by-step set of operations to be performed to help solve a problem

Debugging

Finding problems or 'bugs' in code and solving them

Sequences

Identifying a series of steps for a task. Computers and Scratch read and perform commands in order from top to bottom

Here is a youtube video on how it may all look:
bit.ly/human-coding-grid.

Lesson

You can choose to break this lesson up into two or three lessons depending on your students' needs.

Minds on

Let kids know you will be reading a story about penguins solving a problem using movement and directions. Talk about what the words movement and direction mean and ask for specific examples of directions (e.g., forward, backwards, side-to-side, left, right). Then, get everyone to stand up and do the motions of the directions the class has discussed. You can even do this as penguins! This is a great way to incorporate daily physical activity during your lesson. Once the kids have settled down, let them sit back on the carpet and repeat some of the motions with just their hands (e.g., move your hands up, move your hands down, move your hands forward) this is to encourage your students to calm down and get ready for the read aloud.

Body

Read aloud "Peg+Cat: Penguin Problem".

Once finished reading, on a fresh piece of chart paper, write down and draw words of movement the kids have noticed in the book they've just read. Suggest they add any the book has missed. This is your anchor chart so make sure it's clear.

Optional: You can choose to divide this lesson plan up into two. If you think your students can handle the next part of the lesson, continue on. But it's nice to have this as two lessons.

If you split your lesson up, go over your anchor chart, reviewing the words and their definitions. Also consider reviewing the story they read last time.

Curricular Connections

Demonstrating literacy and mathematical behaviour

References

Photo by Naomi Shi from Pexels.

<https://www.pexels.com/photo/three-toddler-eating-on-white-table-1001914/>

Get your students to sit around the grid. Remind them the carpet rules and to respect the grid (no peeling the tape!). Place the "start" card on one end (corner) of the grid and the "end" card at the other end of the grid. Tell the students to use words from the anchor chart to guide you from the start card to the end card. The kids who are telling you where to go are the programmers and the person on the grid is a gamer.

Try again with a student as the gamer. The teacher will be the programmer. The teacher can try writing down the directions on the board or chart paper as the programmer.

The last step is to add barriers like stuffed animals or other students in the cells. The programmer must use movement words to avoid these barriers. You can decide whether your students are ready to write down the programming direction in a sequence or if they can only handle saying directions verbally.

Consolidation

Assign students to be the programmer and the gamer. Take turns.

Assessment

At the end of this lesson, students will be able to use language of location to move manipulatives (e.g., objects or people) from one spot to another.

Have students write down the sequence on a strip of paper. Ask the teacher/another student to try doing the sequence.

You can also ask the students to say the directions for you to see if they understand the language of location.

You could also assess if your students understand cardinal numbers (e.g., move three steps forward).

Extensions

You can choose to have little cards with directions on it in arrow form so that students can lay out the directions instead of drawing them on a piece of paper. You can use "littlecodr cards" if you have them.

In any part of the lesson, you can add more objects for students and set up conditions, like "If you are in front of an object, jump 3 times".