

Coding with Cornell: Data Types (Part Two: Variables Focus)

Grade Level: Kindergarten

Common Core National Standards Alignment

- **RL.K.1:** With prompting and support, ask and answer questions about key details in a text.
 - **SL.K.5:** Add drawings or other visual displays to descriptions as desired to provide additional detail.
 - **L.K.5.a:** Sort common objects into categories to gain a sense of the concepts the categories represent.
 - **L.K.5.c:** Identify real-life connections between words and their use.
-

Lesson Objectives

By the end of the lesson, students will:

- Listen to and engage with *Coding with Cornell: Data Types* through discussion and guided activities.
 - Understand that **variables hold information** in coding.
 - Participate in a hands-on activity matching variables to their values.
 - Express understanding by drawing or dictating their own examples of variables.
-

Resources and Materials

- *Coding with Cornell: Data Types* book
 - *Coding with Cornell: Activity Workbook*
 - Small labeled boxes (e.g., "favorite color"), and small objects (e.g., crayons, toys)
 - Flashcards with labeled variables (e.g., "Favorite color = Blue")
 - Blank index cards for students to create their own variables
 - Pencils, crayons, and paper
-

Vocabulary Words from the Text

- **Coding** – Writing instructions for a computer.
 - **Data** – Information that a computer uses.
 - **Integer** – A whole number (like 1, 2, or 3).
 - **String** – A word or a sentence in coding.
 - **Float** – A number with a decimal (like 1.5 or 3.1).
 - **Boolean** – A type of data that is either **True** or **False**.
 - **Numbers** – Digits like 1, 2, and 3 used to count.
 - **Variable** – A container that holds information in coding.
-

Lesson Introduction

- With students at their desks, ask them what they remember about integers, floats, and strings from the previous lesson on *Coding with Cornell: Data Types*.
- Write “integers”, “floats”, “strings” and “Booleans” on the board, providing guidance and providing examples as the students recall what each data type represents:
 - Integers – whole numbers (e.g., the student’s age)
 - Floats – decimal numbers (e.g., “numbers with a spot”)
 - Strings – words that are in quotes (e.g., the student’s name)
 - Booleans – true or false (e.g., “It’s true that you’re unique, and false that there’s anyone like you.”)
- Once students have recalled the previous information from *Coding with Cornell: Data Types*, inform that this lesson will focus on **variables**. Tell students to think of a variable as a special box where we get to keep important information.
 - **Guidance:** Variables help us **store information** so we can use it later. If students like playing games, we could create a variable named **score** to keep the score of the game. The variable **score** is used to hold an integer point value.

(Write the word *variable* on the board and ask: “What do you think *variable* means?” Guide students to understand that a **variable holds information**.)

Lesson Activities/Tasks

Activity 1: Read Aloud and Discussion

- Re-read *Coding with Cornell: Data Types*, focusing closely on the section that introduces variables.
- Ask students:

English-Language Arts Lesson Plan: Kindergarten

Coding with Cornell: Data Types

- “What does a variable do?” (*It holds information!*)
 - “Which *data types* that can a variable hold?” (*integers, strings, floats, Booleans—all the data types we have learned!*)
 - “What are the three variable names Cornell gives as examples?” (*toys, colors, birds*)
-

Activity 2: Variable Box

- **Educator Preparation:** Label three small boxes “color,” “toy,” and “bird.” Print individual picture cutouts of various colored crayons, toys, and birds. Alternatively, you can use real crayons and real toys. Place each item in the appropriate box. Be sure to have enough options for all students in your class.
 - Individually, allow students to open the box and remove one picture. The student should show the picture to the class, then share the name of the item aloud.
 - If a student pulls a picture of an owl out of the **bird** box, the student should say, “The **bird** is an owl.”
 - If a student pulls a green crayon out of the **color** box, the student should say, “The **color** is green.”
 - If a student pulls a toy truck figure out of the **toy** box, the student should say, “The **toy** is a truck.”
 - **Guidance Note:** This activity helps students recognize different colors, toys, and birds, and provides understanding of how a variable name (**toy**, **bird**, or **color**) can have many different values.
-

Activity 3: Draw Your Favorite Animal

- **Educator Preparation:** On a blank sheet of paper, print a single line that says “Favorite Animal = _____”.
 - Leaving enough space for students to draw in the open space, instruct students to draw a picture of their favorite animal, and label the picture with the animal’s name. Have students share their favorite animal drawings with the class.
 - **Guidance Note:** This activity helps students understand that variables can have different values.
-

Activity 4: Workbook Integration

- Have students complete the first four *Variables* worksheets in the Coding with Cornell Activity Workbook as classroom or homework activities.

Lesson Conclusion & Assessment

Wrap-Up Discussion:

- “What is a variable?” (*Guide students to understand that a variable **holds information.***)
- “What kind of information can we store in a variable?” (*Encourage responses like colors, names, and numbers.*)
- “How do variables help us when we use computers?” (*Help them understand that computers store information like names in games or favorite TV shows.*)