Name: _____ Date: _____

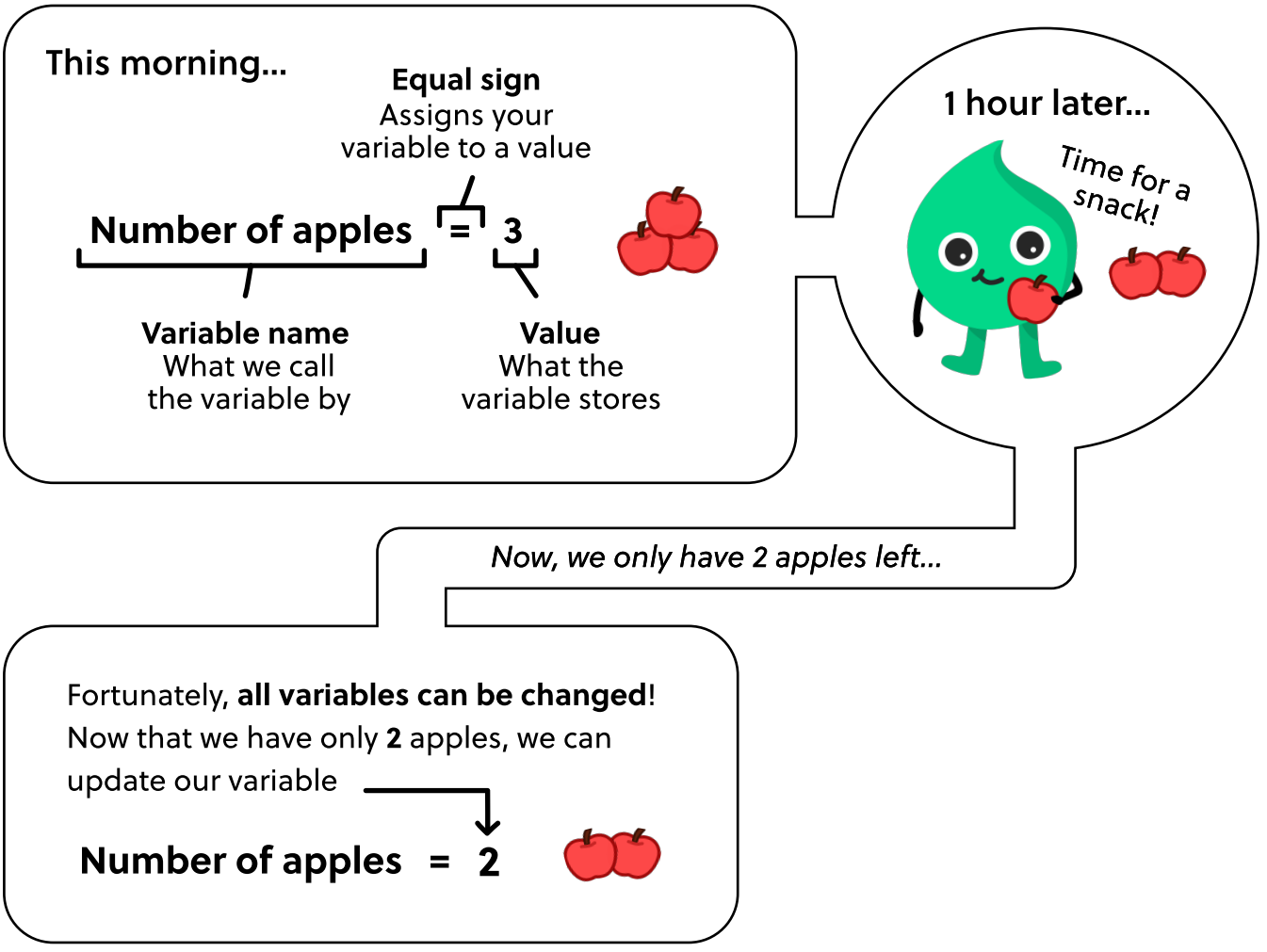
# Vivid Variables

## Welcome to Decomposphere!

Ready, set, learn! Dive into the grassy lands of Decomposphere with Dot and learn all about breaking down problems into smaller parts. Today, we'll be starting off our journey with variables!

## What are variables?

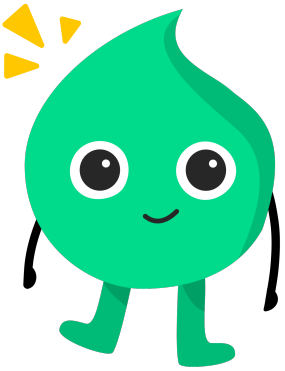
In computer science, we use **variables** to **store any type of information**. Every variable has a **name** that we use to call it by, and a **value** that the variable stores. Let's take a look at how we can make our own variables!



## More Variables!

Instead of just storing numbers, variables can also store words, names, etc! Let's take a look at more examples of variables:

### All About Dot!



**Demy's Variables**

Name = Dot

Home = Decomposphere

Favorite color = Green

Favorite food = Apples

Number of siblings = 2

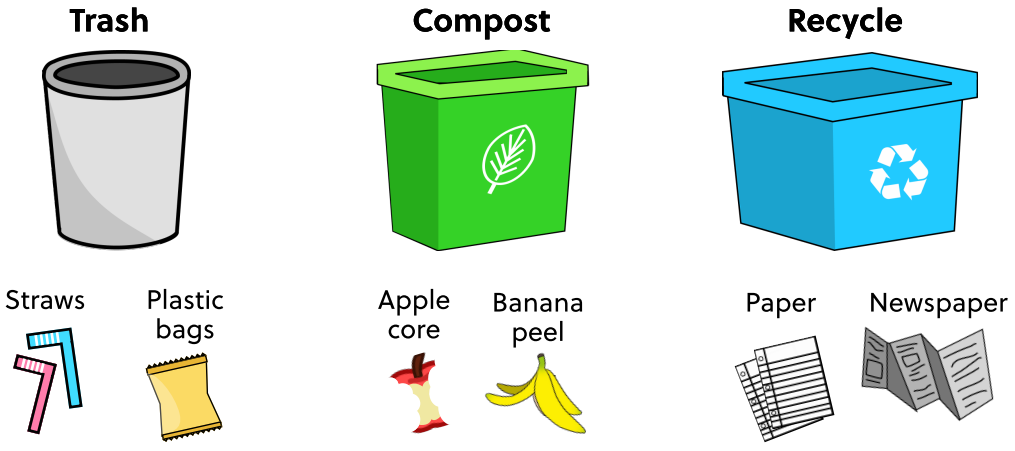
Lucky number = 35

In our next example, we'll explore how these variables can be split into different categories.

## Trash Sort

Variables are split up into different categories depending on their value. To explain this, let's take a look at how we separate trash into three bins: Trash, Compost, and Recycle.

All of our waste either belongs in the Trash, Compost, or Recycle bin.
Below each bin are a couple examples of what goes where!



Similar to how we sorted waste into the trash, compost, and recycling bins in our trash sort example, we also sort variables into different categories called **data types**.

## Vast Variety of Variables

There are many different data types in computer science, but the most common are **strings, integers, and doubles**. When programming, we define our variables using these data types to tell the computer what type of information our variable stores.

**String** variables store text: ex. "Hello!", "What's up?"
**Integer** variables store whole numbers: ex. 1, 3, 100
**Double** variables store decimal numbers: ex. 3.14, 9.0, 0.034

Below, each bucket represents the string, integer, or double data type that could be used as variables to describe apples.

Ex. To store the number of apples we have, we can use a string "two", integer 2, or double 2.0. If we have only a bite left, we could use a double 0.1!


## Snowball Fight!

Using your knowledge of variables and data types, you will be using variables to fill in a silly paragraph!

### Setup

- On your 'Silly Paragraph Variables' page, you will find ten rectangles. **Each rectangle will represent a variable** from the Variable Names List below (You will have ten variables in total).

- Assign each variable a **name** from the Variable Names List, a **value**, and a **data type** (String, Integer, or Double) depending on its value. Ensure that the number for each variable matches up with the number of its rectangle (ex. The sport variable belongs on the 2nd rectangle). When finished, cut out your pieces along the dotted lines.

### Variable Names List

(Assign each variable a **name** from this list)

1. Weather
2. Sport
3. Outdoor place
4. Plural animal
5. Favorite number
6. Past-tense action verb
7. Price
8. Adverb
9. Plural animal 2
10. Adjective

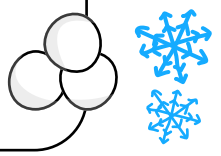
### Data Types

(Assign each variable a **data type**)

String

Integer

Double



## How to Play

- Sit in a circle with a group of 4-10 people.
- Crumple and ball up the first variable from your stack to form a "snowball". (Check the number on your snowball—This should be the same for everyone!) When everyone has their snowballs ready, throw them into the center of your circle.
- Take one snowball from the center of your circle. (Don't open it up yet!)
- Repeat the process of throwing and taking snowballs with your other nine pieces of paper. After this, everyone should have ten snowballs each!
- It's finally time to open all of your snowballs! On the 'Silly Paragraph' page, use your snowballs to fill in the missing variables in the paragraph. When you finish, read aloud your silly paragraph to your group!

**1**

_____ _____ =

Data type Name

_____

Value

**2**

_____ _____ =

Data type Name

_____

Value

**3**

_____ _____ =

Data type Name

_____

Value

**4**

_____ _____ =

Data type Name

_____

Value

**5**

_____ _____ =

Data type Name

_____

Value

**6**

_____ _____ =

Data type Name

_____

Value

**7**

_____ _____ =

Data type Name

_____

Value

**8**

_____ _____ =

Data type Name

_____

Value

**9**

_____ _____ =

Data type Name

_____

Value

**10**

_____ _____ =

Data type Name

_____

Value

# Silly Paragraph: A Day in Decomposphere

To complete your silly paragraph, use your snowballs to write in the value of each variable (the variable names are below the missing blanks)!

It was a nice, _____ day in Decomposphere—the perfect weather
Weather

for outdoor sports! I quickly gathered my friends to play some

_____ and enjoy the summer breeze. But when we finally arrived at
Sport

the _____ to play, it started to rain _____. It
Outdoor Place Plural Animal

was crazy, to say the least, not even a minute has passed and I had already seen

_____ of them! Since it was raining so heavily, I
Favorite Number

_____ to the nearest store to buy a sturdy umbrella for a striking
Past-tense Action Verb

price of _____ . With my new umbrella, I
Price

_____ returned home, only to find that it was now raining
Adverb

_____. What a(n) _____ day!
Plural Animal 2 Adjective