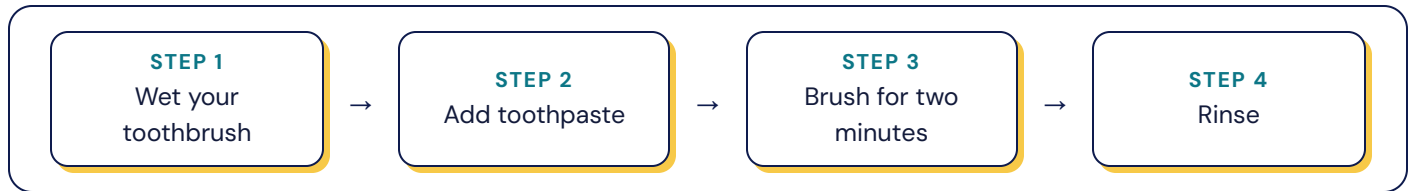


# What Is an Algorithm?

Name \_\_\_\_\_

Learn how clear steps, in the right order, get a job done.

Date \_\_\_\_\_



An algorithm is a list of clear steps, in order, that gets a job done.

## 1 Put the Steps in Order

These steps for making toast are mixed up. Number them from 1 to 5.

☐ Spread butter on the toast

☐ Push the lever down

☐ Put the bread in the toaster

☐ Take a slice of bread

☐ Wait for the toast to pop up

## 2 Is It an Algorithm?

An algorithm has clear steps, in order, and it ends. Circle YES or NO.

1. A recipe for pancakes

YES

NO

2. "Do something fun today."

YES

NO

3. Directions from your home to your school

YES

NO

4. A list of your favorite colors

YES

NO

5. The steps you follow to add two big numbers

YES

NO

## 3 Which Plan Is Faster?

A friend picks a secret number from 1 to 100. After each guess, your friend says "higher" or "lower."

### Plan A

Guess 1, then 2, then 3, and keep going up by one.

### Plan B

Guess the middle number. Then guess the middle of the numbers that are left.

Which plan usually needs fewer guesses? \_\_\_\_\_

Why? \_\_\_\_\_

## 4 Write Your Own Algorithm

Write exact steps for drawing a simple house. Then give them to someone and ask them to follow **only** what you wrote. Does their house look like the one you imagined?

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Their drawing goes here

## 5 In Your Own Words

Why do the steps of an algorithm need to be clear and in the right order?

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**Did you know?** The word “algorithm” comes from the name of al-Khwarizmi, a mathematician who lived about 1,200 years ago. People used algorithms long before computers existed.

**Answers for grown-ups.** 1: Take a slice of bread (1), put it in the toaster (2), push the lever down (3), wait for it to pop up (4), spread butter (5). 2: 1 Yes, 2 No (no clear steps), 3 Yes, 4 No (a list of things, not steps), 5 Yes. 3: Plan B. Each guess removes about half of the numbers that are left, so it needs 7 guesses at most. Plan A could need up to 100. 5: A computer or a person following the steps does exactly what they say, so a missing, unclear, or out-of-order step gives the wrong result.

### KEEP LEARNING

Goes with the book **How Computers Work for Kids Ages 8–12** by Laith Sad.

Book on Amazon: [amazon.com/dp/BOHLYSJ1QX](https://www.amazon.com/dp/BOHLYSJ1QX)

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