

Put On a Show

Educator's Guide

Overview

CS Hands-On is a 501(c)(3) nonprofit teaching computational thinking skills through technology-free lessons and activities. This curriculum is built to teach fundamental computer science concepts in an engaging, hands-on way. In this mission, students use functions to create a 1 minute stage performance.

- **Prerequisite Knowledge**

There are no prerequisites to this lesson.

- **Lesson Details**

At Abstractopia, students will learn to remove unnecessary details using abstraction with Alon. Students will learn about functions and use functions to create a 1 minute stage performance.

This lesson was developed for students ages 6 to 13, and can be modified for students of all skills and ages. This lesson takes roughly 30 minutes.

Learning Objectives

- **Key Question**

How can we use functions to create a 1 minute stage performance?

- **Key Terms**

Function: A set of actions that accomplish a specific task

- **Curriculum Standards**

Students should be able to...

- Title and create a function (Abstraction)
- Read, write, and interpret functions (Literacy)
- Act out the process of a function (Creative Arts)

[View standards addressed here](#)



Lesson Plan

• Materials

- Put on a Show worksheet (per student)

• Setup

- Hand out a Put on a Show worksheet to each student
- Set up your classroom to have space for students to perform their functions

ANSWER KEY & LESSON ANNOTATIONS

Name: _____ Date: _____

Put on a Show

What's it like today in Abstractopia?

It's a nice, sunny day in Abstractopia--perfect for some performances outside! But before planning your show, Alon will teach you all about functions to help you get started!

What are Functions?

A **function** is a **set of actions** that accomplish a specific task. Let's make a pit stop at Alon's Deli to learn more!



Alon's Deli

At Alon's Deli, Alon uses functions to make all kinds of sandwiches, his most famous being a classic PB&J! Take a look at how Alon makes his delicious PB&J.

Include a descriptive title

Use **def** at the start to define our function. List the steps to make a PB&J sandwich in the **body** of the function.

In the Kitchen

Begin the body of your function with a **colon**.
def Make Alon's Famous PB&J Sandwich:
 1. Take out two slices of fluffy bread
 2. Spread crunchy peanut butter on one slice
 3. Spread grape jelly on the other slice
 4. Smash the two slices together--BAM!



Educator Note

In the diagram, we can see that Alon has a function for creating his famous PB&J sandwich. When else can we use functions in our everyday life?

Examples include instructions for baking cookies, doing a cartwheel, washing the dishes.



Lights, Camera, Action!

Join Alon and his friends to create a performance for comedy, drama, anything you'd like!

Create your function with all of the steps you would take to put on a one-minute production (You will be performing this later!) Here are some of Alon's ideas to help you get started:



Tell a Knock Knock Joke :

Say 'Knock Knock'

1. Wait for person to say 'Who's there?'

2. Say 'Tank'

3. Wait for person to say 'Tank who?'

4. Say 'You're welcome!'

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

And the curtain opens ... Perform your 1-minute production!

Educator Note and Extension

When creating a function, make sure that each step is as descriptive and thorough as possible. Especially in computer science, it is essential to precisely tell the computer what to do to avoid confusion.

For instance, in the following 'Tell a Knock Knock Joke' function, we must say the joke and include instructions to wait for the other person to respond.



Wrap up & reflect

Group students into pairs and have them discuss the following reflection questions. Afterwards, have students share their ideas as a class.

- What is the importance of functions?

Ex. Functions help us organize steps or instructions to be in one place.

Functions come in handy when we need to reuse or reference those instructions, as they are already written and defined. Additionally, functions help us improve the readability of our instructions. For instance, Alon's 'Make Alon's Famous PB&J Sandwich' function is easy to understand because of its well-defined title.