



Observation Station

Hello from Abstractopia!

Ready to dive into loads of lists? Here at Abstractopia, Alon will guide you through the different ways computers use lists to solve problems.



Lots of lists!

To-do lists, packing lists, and bucket lists are just a few examples of lists we use in everyday life! In computer science, **lists** are used very similarly for **storing information in an organized way**.

What are indexes?

Each item in a list is numbered, and these numbers are called **indexes**. By assigning each item to an index (a number), it's a lot easier to search and sort through the list.

Geography Time!

Let's explore indexes further with a Geography lesson from Alon:

How we've been counting:



We count from **starting from the number 1**. Here are the planets in our galaxy listed from largest to smallest. Abstractopia's index is 1 and Logicland's index is 4.

Planet Size List

1. Abstractopia
2. Decomosphere
3. Algorithopoly
4. Logicland
5. Patteron
6. Evaluatus

How computers count:



Computers count **starting from the number 0**. As a result, each planet's index shifts by -1. Abstractopia's index is 0 and Logicland's index is 3!

Planet Size List

0. Abstractopia
1. Decomosphere
2. Algorithopoly
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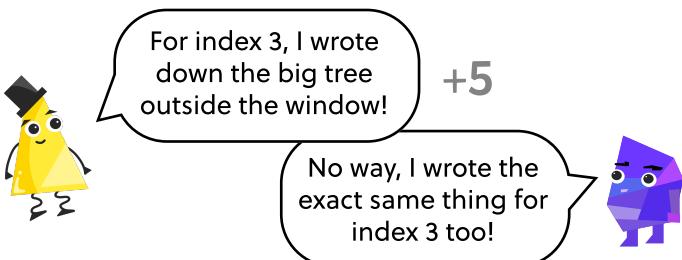
Observation Telepathy: The Game

At Abstractopia, Alon's favorite game to play with friends is Observation Telepathy!

Directions:

With a friend, set a 1-minute timer and quickly jot down the **first 10 items** you observe around you. Try to make your lists as **similar as possible** without talking or making any gestures!

After you both complete your list, take turns reading your items one-by-one out loud to **compare your observations for each index** (number).



Scoring

Aim for the highest score!

Same item at same index: **5 points**

Same item at different index: **1 point**

Different item: **0 points**

My Observation List

0. _____
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Our Score:



ABSTRACTOPIA

Mission 2

My Observation List

0. _____
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Our Score:

My Observation List

0. _____
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Our Score:



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?

Simply put, a **function** is a **set of actions** that should happen when doing a certain 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 popular 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

`def Make Alon's Famous PB&J Sandwich():`

Begin the body of your function with a **colon**

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!





Lights, Camera, Action!

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

Create your own 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:



def _____ :

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

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