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LESSON NAME:

Abstract Libs

Lesson time: 45–60 Minutes : 5 minutes

Main Goal: Help students to see how often they use abstraction in their everyday life.

OVERVIEW:

We'll combine your students' everyday routine and a Mad-Lib style thinking game to help your class learn about the effectiveness of abstraction.

OBJECTIVE:

Students will —

- Have the chance to internalize the idea of "abstraction"
- Combine writing and abstraction to test their own creativity
- Analyze their day to find differences that they can turn into similarities

MATERIALS:

- Paper, pencils, and printed copies of stories for every student

PREPARATION:

Print copies of the "fill-in-the-blank" story provided.

VOCABULARY:

Abstraction—Removing details from a solution so that it can work for many problems

Specific—Talking about only one exact thing

*Template*—A frame to guide you in creating something new

REVIEW:

This review segment is intended to get the class thinking back to the last lesson. If you are covering these activities out of order, please substitute your own review subjects here.

Class Participation Questions:

- What did we do in our last lesson?
- What kind of functions did we define in our last lesson?
- What was special about a function versus any other block dragged out to the canvas?

Elbow Partner Discussion:

• Try to remember how you created a function to remove 8 shovels of dirt all the way down a path. How would you write a similar program for drawing stars on your notebook paper, if you wanted a star on the top line, then another star every three lines all the way down to the bottom? requires two blocks. What is the minimum value, maximum value, and add-on amount for each block?
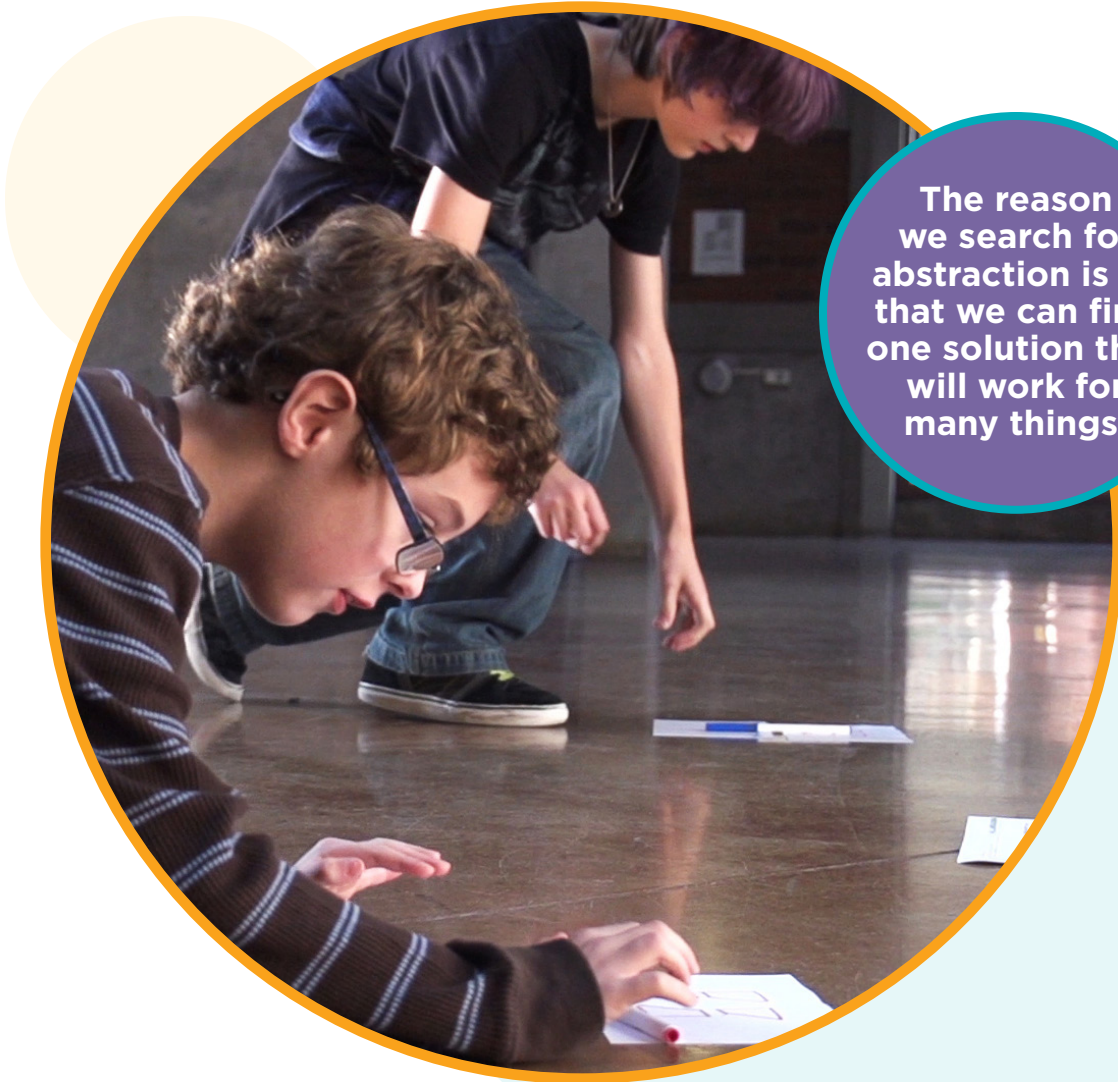
> The reason we search for abstraction is so that we can find one solution that will work for many things.

INTRODUCE:
When you finish your review, try taking your class by surprise.
"So, what did you have for waffles this morning?"
Your students might look perplexed?
"No one? Okay, what did you have for toast yesterday?"

You may start to get some hands raising, and people eager to share and agree because they want to relate, but possibly not because they understand.

"See what I was doing there? I identified my experience in a very specific manner, and that made it harder for everyone else to relate to. What could I have said that more people would have understood?"

At some point, they'll start to come up with the idea of using "breakfast" in place of the actual food that was consumed.

"In a way, the word 'breakfast' is like a variable that we use to hold a space for whatever it is we ate this morning. By taking the specific word out and replacing the space it leaves with 'breakfast,' we are using abstraction to make something work for multiple people."

Ask the class to give you some examples of other places that they may naturally use abstraction to allow more people to understand them. The idea of lunch and dinner will most-likely come up. Is there anything *not* food related?

The next step is to pass out a "fill-in-the-blank" story (see the end of this document for a copy to print out) . Let them know that this started as a specific story about one thing, but we used abstraction to turn some of the specific words into blanks, and now the story can be about lots of things. Ask them what they can make their story about.

First you take your (_____) **then add a layer of** (_____) **before you pour on a hearty dose of** (_____). **Next, press some** (_____) **down into the** (_____) **before covering with a sprinkle of** (_____). **That's how I make a** (_____)**!**

Give a few students the chance to share their stories. How similar or different were they? Did someone have a version that was almost identical to another student's? Did anyone have a story that is completely different?

Next, ask if this reminds the students of anything else you have done in class. Many will find it similar to the **CHORUS** activity from the last lesson. Use that opportunity to share that the reason we search for abstraction is so that we can find one solution that will work for many things, just as we were creating one chorus that works for many verses in a song.

Now, give the students the page that has two different stories that were created from the same template. Can they figure out what places need to be abstracted? What does their abstracted story look like? Can they create a third story, using the abstracted template?

Can the students abstract the template even further, even if the three versions of the stories don't require it? What might that look like? Does a more abstract template have more or less flexibility? Is there a point when abstracting a template is no longer helpful? What about when the entire story is blank??

If there's more time at the end of this lesson, have the students create their own templates from scratch. Allow them to trade stories with their classmates and see what happens!

ADJUSTMENTS:

K-2: You may want to do almost this entire activity as a full class. Have individual students come up to the front to make changes, to keep the feeling of an interactive activity.

3-5: These activities should be able to run just about as written!

6-8: Feel free to replace the provided stories with paragraphs from stories that they have been reading in school. Try relating the activities back to Mad Libs, by encouraging them to label blanks with "types" like "noun," "verb," and "adjective." Abstraction can be fun!

BLANK TEMPLATE

First you take your (_____) **then add a layer of** (_____) **before you pour on a hearty dose of** (_____). **Next, press some** (_____) **down into the** (_____) **before covering with a sprinkle of** (_____). **That's how I make a** (_____)**!**

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Story 1:

Early last year, my mom gave me an old skateboard. She told me about the days when she would ride it from her school in her hometown. I tried to ride it once, but tripped over my shoelaces. It didn't take long before I decided that it was best to leave the skateboarding to my mom.

Story 2:

Sometime last year, my mom told me an old story. She told me about the days when she would hear it from her father in her childhood. I tried to tell it once, but tripped over my words. It didn't take long before I decided that it was best to leave the storytelling to my mom.