

brackitz®

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V2.0

LESSONS

CREATURE

COMFORTS





Lesson 4: CREATURE COMFORTS



Students continue their play-based introduction to solving problems by designing and building to the Gingerbread character's special needs. Students continue to consider dimensions as they design health, safety, comfort, and recreation items for a character that's much smaller than them.

Objectives:



"I can design in 2-D and then build in 3-D," and "I can consider what a user needs." Students will demonstrate they can create a Brackitz design that considers the difference between themselves and the creature, continue getting familiar with the Brackitz system, and build their collaboration skills.

Vocabulary used in this activity:

Benefit, scale, dimensions, detail, design

Standards

NGSS

Science and Engineering Practices

Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

CCSS-MATH

1.MD.A.1, K.G.A.1

CCSS-ELA

SL.K.1.A, SL.5.K, W.1.8, SL.1.5, SL.1.6

ECERS-R

Language-Reasoning: Books and pictures, Encouraging children to communicate. Using language to develop reasoning skills.

Activities: Fine Motor, Art, Math/Numbers

Program Structure: Group time

Time needed: Materials and Supplies:

35-40 minutes

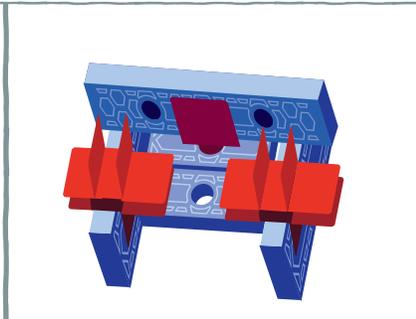
3-D gingerbread character to remind students of the size and dimensions, paper, pencils or crayons, Brackitz planks and connectors (all types).

Setup and preparation:

Have trays, boxes or plates ready with the same number of planks and connectors for each group; help students cooperatively form groups of two or three to work together.

Background knowledge:

Prior to this lesson, the only background knowledge students need is to be able to pick things up and grasp them. A reminder of the agreed upon dimensions of the Gingerbread character will help students build with their friend in mind.





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40 minutes

Whole Class

10 minutes



“Here are some things we’ve done for our gingerbread friend: we know their size in 2-D and 3-D, we built a place for our friend to stay, and built a tool to try and get them out safely. What else does our friend need? Designers and engineers do their best work when they make things that someone else needs and wants to use. Let’s think what our friend needs to live here and be happy and have fun and write down all the ideas. S/he lives in a world of big people but is very small and needs some special things.” Have the whole group think of ideas about what their small friend needs to be safe and happy. Record all ideas on a white board or class chart.

Instructor Notes and Tips

To help get the brainstorm started you could ask students what makes them safe and happy every day: place to live and sleep, toys, going to school, etc. Then ask them if their friend needs the same things, and if so, if they need to be made differently for her/him to use them (smaller)!

Great ideas if you and your class are struggling are:

- creature playground
- place to plant a garden
- toys and toy room
- tiny furniture (places to eat, sleep, and relax).

Group Exploration

10 minutes



Assign each group one idea, so each group is working on something different. Ask them to keep in mind the friend’s size and how this idea will help her/him live in a world of big people. “Your job is to work as a group to use the Brackitz planks and connectors to build this idea. Make a drawing. Remember her/his world can be a different scale than ours - much smaller. Your drawing should have enough detail so that someone else could build what you’re thinking.”

Help small groups get started by reminding them how this idea will help or benefit their gingerbread friend. Will it make her/him more happy, safe, comfortable, healthy?

Remind them that a drawing should have enough detail that, “someone who wasn’t in class with us could find it and use it to make something like what you planned.”

Group Challenge

15 minutes



“Now it’s time to go from two dimensional drawings into a 3-D building! Build what your group planned, using Brackitz planks and connectors. Remember, we’re building for our Gingerbread friend that’s this small (indicate all three dimensions or put on board).”

As students begin building, watch to make sure groups are able to share pieces and ideas functionally. Circulate to groups to help groups keep scale and dimensions in mind as they move from a 2-D plan to 3-D build.



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Reflection



5 minutes



(Teacher brings whole class back together and aggregates from small group builds.) “Do all of your special homes fit? What happens if we make it too small?”

And, “We need to be sure we all know how big our Gingerbread friend is, in all three dimensions! Use your Brackitz planks to check that measurement and record it.”

Direct students to record these decisions on their worksheets or in design notebooks

Having pre-arranged trays, boxes, or plates with the same amounts of Brackitz planks and connectors can save time on organizing tools. You may also wish to have multiple boxes so groups can test without taking turns.

As groups test their tool, keep reminding them to ask, “How will we know if our design worked?”

(Goal: If it can open the box and allow you to be far away without breaking or being unsafe.)

CHALLENGE ADVANCED STUDENTS

Ask each group to do 1 minute presentations. “Tell us: What you made, and how it helps our our Gingerbread friend. Tell us too, if you had more time, what would you add to your design or change on it.” Help students preserve their structures for the next lesson - pictures, or videos where students do a show and tell are great tools to preserve their ideas.

SIMPLIFY FOR YOUNGER GROUPS

As they share, keep asking: “How does this benefit our friend?” (How does it help her/him be safer, healthier, happier, more comfortable?) Ask also, “How will this work to help out our friend live in a world of big people?”

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What are some things you need to be safe and happy? (List at least three things)

1. _____
2. _____
3. _____
4. _____

What are some things you think would make your Gingerbread friend feel safe and happy since they are small, but living in our big world? (List at least three things)

1. _____
2. _____
3. _____
4. _____



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What did you make to help our gingerbread friend?

Draw your design here.

What changes would you make if you had time? (Write down at least one thing)

1. _____
2. _____
3. _____