



# HOME FOR A HAMSTER

## Grade 1 Lesson Plan

### OVERVIEW

Home for a Hamster is an ADST building activity that provides an engaging task to address Social Studies and math content. Students are introduced to shapes that can be used to create structures then given a design challenge. It also includes a career element introducing students to structures that engineers create and how they work to solve building challenges in communities.

### CURRICULUM TIES

AREA	BIG IDEA
Social Studies	We shape the local environment, and the local environment shapes who we are and how we live.
Math	Objects and shapes have attributes that help can be described, measured, and compared.
ADST	Designs grow out of natural curiosity and skills can be developed through play.

More information on the links to the BC Curriculum is [available online](#).

### MATERIALS LIST

- Building materials
  - These could be: straws, long pasta, toothpicks, marshmallows, tape, cardboard strips, pipe cleaners, popsicle sticks.
  - Educators can also encourage students to consider using “loose parts” from nature, like small sticks.
- Building surface, like recycled cardboard, so you can move Hamster Homes from one location to another.

- Pattern or Attribute Blocks, Unifix cubes, Keva blocks
- Video or photo device and computer projector
- Pocket chart with *Geometric Shapes* Template
- Shapes and Structures Power Point
- *Home for a Hamster* Science Journal Printable Template

## EDUCATOR INSTRUCTIONS

This building challenge is to design a hamster home. This is a guided challenge that will allow the students to practice empathy/ideating with the same end goal in mind. Depending on students' abilities/experience this could be opened up to an open-ended "design any structure" inquiry.

This is design/building challenge gets students thinking about local community structures and the people who create them. The career aspect addresses "the people behind the structures in our community, the challenges they solve and how they work". This includes constructions such as water parks, playgrounds, new schools, residential towers, bridges, a Big House in an Indigenous community, mosque, etc.

Relevant structures will vary from community to community. Educators could focus on a building in the news as a springboard to the design challenge in class. Ideally students could visit a site(s), as is encouraged in the curriculum extracts.

We suggest using materials such as straws, pasta, toothpicks and marshmallows or tape to create the joints. Toothpicks and miniature marshmallows as building materials are not new to many teachers but offer diverse building possibilities and plastic straws present an environmental challenge. Overall, the activity materials must be easy to access and simple to use; while offering opportunity to create a variety of structures.

## ACTIVITY

SECTION	APPROX. TIME
Introduction	15 minutes
Building Time!	30 minutes
Reflections	15 minutes
Wrap Up	5 minutes

**\*Please note:** Educators can modify the time in each section to best suit their students' needs.

## INTRODUCTION

- 1) **Option 1:** Hold up some attribute blocks and ask if the students know the names of any. Ask the student to explain:

How they know what it is called?

Which characteristics do they think of?

Place the corresponding name cards into a pocket chart.

OR

- Option 2:** Ask students questions related to structures:

Are there any new, big, or unusual buildings in our area?

What do you know about how buildings are made?

- 2) Show the *Shapes and Structures* PowerPoint  
Check out the slide notes for talking points to share with students and encourage discussion. The slides begin by highlighting how shapes appear in structures.
- 3) Show students how shapes have different strengths  
Hold up a square made of straws and a triangle made of straws. Show how the triangle is a stronger shape because it resists being squished (compressed). Demonstrate to the class how you can connect two toothpicks with a marshmallow and two pieces of pasta with tape.

## DESIGN AND BUILDING TIME!

- 1) Ask students what a hamster might need in a home and write down their responses.  
How much space do they need? What size should the doorway be? Is there space for the hamster to turn around? Is there room for a food and water container?
- 2) Review work expectations  
Students can work individually or in small groups. Use a predetermined, shared materials area or bring supplies to their own workspace. Emphasize how engineers share ideas, to help build on each other's thinking and solve challenges.
- 3) Build Hamster Homes  
Students get to work building their Hamster Homes with the materials provided. Give students at least 20 minutes to build, then regroup as a class to discuss their creations. Ask some students to share with the class, explaining how shapes are used to make a strong structure.

Reflections

- 1) If time permits, have students do a gallery walk to see all the unique designs.
- 2) Have students begin a design drawing of their structure building. They should use the Home for a Hamster *Geometric Shapes Template* to identify a few shapes in their Hamster Home and label any unique features/shapes.

## WRAP UP

- 1) Acknowledge and celebrate the diversity of thinking and creativity demonstrated by students in the Home for a Hamster challenge. If there is a hamster in the classroom, introduce it to some of the new homes.

## EVALUATION

- The ADST Curricular Competencies in this activity could be used as evidence students use in a Core Competency self-assessment.
- The students' hamster home drawings could be displayed with their models.
- The questions and observations generated during the building could be collected then explored through a future ADST building inquiry.
- The photos/videos of the students-in-action could be imported to an electronic reporting platform and/or posted for parents to see.

## ENGINEERING AT WORK IN YOUR COMMUNITY

Engineering in General: Engineers make a difference. They use their imagination, creativity, and expertise every day to solve problems and improve the world we live in. They work with people like architects and doctors to make the world better and help people live healthier and safer lives. There are many different types of engineers at work in our community.

When it comes to building structures, there are a few different types of engineers that are involved:

**Civil Engineers:** Design and build many of the things we take for granted every day, like highways, transit system, bridges, and tunnels. They look at how a structure is connected to the rest of a city/town.

**Structural Engineers:** are a special type of civil engineer. They design buildings to make sure they are safe. Buildings and other structures need to be strong and stable enough for people to use them. Structural engineers also design buildings that are safe for people to use, even in the event of an earthquake.

**Geotechnical Engineers:** look at the ground underneath these structures. You can't build a stable building unless you know what you are building on. Geotechnical engineers use their knowledge to ensure the ground underneath a building or other structure are as stable as possible.

## MODIFY/EXTEND THIS ACTIVITY

- Connect building structures to structural features of living things  
Engineers consider the strengths of various materials and shapes when solving a challenge, especially as gravity wants to pull everything down. Students could look at how the hidden skeletons of buildings serve a similar function as animal skeletons. Some things have a skeleton on the outside (such as a climbing playground apparatus or Telus World of Science) which serve a similar purpose as animal exoskeletons. Nature can inspire engineers!
- Use local buildings to prompt a discussion about geometric shapes  
Are there structures you can see from school, on a tourism/municipal website or in through a Goggle search that you can add to this lesson?

- Change the building materials  
Use pattern blocks, geo blocks or Unifix cubes to create structures if the other materials are too frustrating for the students to use.
- Teachers are encouraged to contact their district's Indigenous education team to identify local resources to enrich the building challenge. Educators could begin the lesson with a focus on the construction of traditional shelters. Visit the [First Nations Education Steering Committee website](#) for additional resources in this area.

## RESOURCES

Interested in learning more? Check out these resources.

- [Engineers and Geoscientists BC Website](#)
- Khan Academy: [Recognizing Shapes Video](#)
- Kurpinski's Class - [Structures and Forces Information](#)
- Beaver Engineers. Tracey Reeder. Macmillan Education Australia Pty Ltd.  
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