

## Grade 1 Let's Build



**Unit Summary:** Students explore and classify a variety of materials, build simple and complex structures, explore various tools, follow directions and steps for design and construction, and explore parts working together.

### Length of Unit:

**Critical Questions:** How are things put together? How do you know which materials to use when building? Why do we need tools? Why do we need directions?

### Ohio Standards :

**Standard(s):** Science Technology      Scientific Inquiry      Physical Science

### Benchmark(s):

- K2STA      A. Explain why people, when building or making something, need to determine what it will be made of and how it will affect other people and the environment.
- K2STB      B. Explain that to construct something requires planning, communication, problem solving and tools.
- K2PSA      A. Discover that many objects are made of parts that have different characteristics. Describe these characteristics and recognize ways an object may change.

### Indicator(s):

- 1ST1      Explore that some kinds of materials are better suited than others for making something new (e.g., the building materials used in the Three Little Pigs).
- 1ST2      Explain that when trying to build something or get something to work better, it helps to follow directions and ask someone who has done it before.
- 1ST6      Investigate that tools are used to help make things and some things cannot be made without tools.
- 1ST7      Explore that several steps are usually needed to make things (e.g., building with blocks).
- 1ST8      Investigate that when parts are put together they can do things that they could not do by themselves (e.g., blocks, gears and wheels).
- 1SI1      Ask "what happens when" questions.
- 1SI2      Explore and pursue student-generated "what happens when" questions.
- 1SI3      Use appropriate safety procedures when completing scientific investigations.
- 1SI4      Work in a small group to complete an investigation and then share findings with others.
- 1SI5      Create individual conclusions about group findings.

- 1SI6 Use appropriate tools and simple equipment/instruments to safely gather scientific data (e.g., magnifiers, timers and simple balances and other appropriate tools).
- 1SI7 Make estimates to compare familiar lengths, weights and time intervals.
- 1SI8 Use oral, written and pictorial representation to communicate work.
- 1SI9 Describe things as accurately as possible and compare with the observations of others.
- 1PS1 Classify objects according to the materials they are made of and their physical properties.

**Pre-Assessment:** Informal

- KWL Chart
- Discussions- Tell us what your house is made of. What makes a good shelter? What have you built? What was it made of?
- Ask critical questions.

**Scoring Guidelines:** oral responses observations Teacher Judgments

**Ongoing Assessment:** Observation of centers, building structures for strength, journaling, science log,

**Post-Assessment/Summative Assessment:** journal, demonstration, presentation of creation at home

**Scoring Guidelines:** teacher judgment

**Instructional Procedures:**

- Read Alouds-The Three Little Pigs (various versions)
- Sort and explore properties of materials- plates of various materials and discuss their properties (Which will bend, break, tear, burn, weight, oven safe, etc?) straws, toothpicks, paper, foil, craft sticks, washers, wire, keys (see Building Evan-Moor for a complete list)
- Find examples of different materials around the room.
- Make oobleck/slime: 4tbsp cornstarch + 2 tbsp water + food coloring record describing words on a chart for reference
- Manipulate and discuss picture cards of structures. Name the material and discuss the properties. Identify strongest/most useful.
- Build a bridge using 2 wooden blocks. Test various materials laid across the top. Test for strength using pennies.
- Teacher will build a block structure in front of students. Children will list steps needed to recreate.
- Build with various materials. Blocks, legos, zaks, lincoln logs tinker toys, etc.
- Build toothpick and marshmallow houses
- Create houses made of only one material (paper, straws, craft sticks). Test for durability using hairdryer and water spray bottle.

- Make boats for foil or paper, which floats?
- Demonstrate tools (hammer, screwdriver, manual can opener, scissors, cheese slicer, bottle opener, carrot peeler, whisk)
- Student made bulletin board Kinds of Tools-write how tools make work/jobs easier. List tools pencil, ruler, tacks, pins and their uses.
- List tools found at home and their uses.
- Read Miss Meadow Mouse (Evan-Moor). Design and construct a chair.
- Build a wind and waterproof structure-at home
- Students present structures built at home and tell materials and steps taken to create.
- Use legos/zaks to reproduce existing structures.
- Making sandwiches.
- Perform teacher-chosen activity by listing necessary steps/directions (doing cartwheels, dress for outside, washing hands, write a letter of the alphabet).
- Use toy cars, remove/disassemble wheels. Reassemble so that all parts work.
- Show parts of gears. Assemble parts and use.
- Compare one block to many to create a structure.
- Make thread spool racer-see Energy unit.
- Differentiated Instructional Support for All Learners:
- Materials and Resources Needed: a variety of small pieces of wood, plastic, foam, glass, metal, and paper for the children to manipulate. blocks, gears, wheels magnifiers, timers, simple balances
- Small Stale marshmallows
- Toothpicks
- Wooden blocks

#### **Homework Options and Home Connections:**

- Children will fill out questionnaire describing their home.
- They will build a waterproof, windproof structure.
- Interdisciplinary Connections: Social studies-neighborhoods
- Language Arts- journaling, describing
- Math- measurements, estimating
- Art-design, construction

**Technology Connections:** Students can use age appropriate computer programs to enhance/reinforce concepts.

- Designing structures at home. (see homework)
- Recording step by step directions –how they created the structure.
- Associated Vocabulary:
- Ask someone who has done it before
- Follow directions
- Planning
- Communication
- Parts are put together so that they can do things that they could not do by themselves
- Problem solving

- Several steps needed to make things
- Tools
- Used to help make things and some things cannot be made without tools
- Tools are used to safely gather data
- What things are made from related to how the materials will affect other people and the environment
- Some kinds better suited for making something new
- To compare familiar lengths, weights and time intervals
- Safety procedures

**Key Vocabulary:**

Build, Explain, Discover, Explore, Investigate, Ask, Use, Create, Make, Describe, Classify, share findings, Design technology/technological design process (e.g., building, making, constructing, getting something to work better, etc.), Equipment/instruments/tools, Measurement, non-standard, Estimate materials

"what happens when", investigation, conclusions, observations

lengths, weights, time, physical properties

Appropriate safety procedures for investigations

Waterproof, Absorb, Repel, Windproof, put together

**General Tips:** For homework, make sure all children have materials available at home.

Gather your materials early for building.

Allow plenty of time for the presentation/sharing of the structures made at home.

Use center time to build structures from clay or toothpicks and marshmallows.

**Literature Connections:**

Changes, Changes Pat Hutchins

Three Little Pigs, Various Authors

Homes Fiona McDonald

A House is a House for Me (Hoberman),

Learning About Building (Norris) Evan-Moor

How a House is Built Gail Gibbons

**Topic Relationship to other grades:**

2ST3 3. Predict how building or trying something new might affect other people and the environment.

2ST4 4. Communicate orally, pictorially, or in written form the design process used to make something.

**Research Connections:**

Science Through Children's Literature An Integrated Approach Carol M. Butzow + John W. Butzow