THE ADVENTURE:
Which little pig built the strongest house? Build castles using sand, dirt, glue and water to find out which materials are strongest and safest from weather.

PLAN:
- Do you want to do this Adventure indoors, outdoors or at camp? Where will you have sand and dirt to use?
- Doing the Adventure outside on pavement or grass, or on a tarp will make cleanup easier.
- Some of your buildings may need extra time to dry. When will you have your build phase? Your test phase?
- What kinds of materials are used to make buildings?
- What kinds of things do engineers have to think about when designing buildings?
- Why do you think engineers use different materials for different projects?
- What materials will you use to make your buildings?
- Do you want to do this Adventure alone or in pairs?

DO:
Activity #1: Build it!
- Mix glue, sand, dirt, gravel and water to make different building materials.
- Make two houses out of each material.
- Set any buildings using glue aside to dry.

Activity #2: Test it!
- Before you start your tests, make sure any buildings using glue are completely dry.
- Which building holds up best under rain? What happens to the building under the rain?
- Which building holds up best against wind?
- Which building is the strongest? What if something drops on it?

REVIEW:
- What do you know now that you did not know before?
- How did you work together to build your houses?
- Which house was the best? How do you know it was the best?
- What shapes were the strongest?
- How could you use what you learned at camp?
# Three Little Pigs

**Materials:**
- For each builder/pair of builders:
  - 6-8 bathroom-sized paper cups (“Dixie” cups)
  - 1 small bowl for mixing ingredients
  - White glue
  - Water
  - Plastic spoons (about teaspoon-sized)
- For everyone:
  - Access to sand, dirt and gravel
  - Markers or crayons
  - Watering can
  - Hair dryer
  - Books and bricks to test the strength of the houses
  - 1 can of non-stick cooking spray
  - Safety glasses

**Safety Tip:**
- If you are doing this adventure at a park or local beach, make sure to check the area for any hazards before you begin experimenting in the sand.

**Online Resources:**
- A similar activity
- Three Little Pigs
- Build a different kind of house