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**Findley Oaks STEM**

**3rd Grade Design Brief**

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| **Challenge**  Heat Saving Device | **Unit**  Heat |

**Standard:** Prioritized Standard: S3P1.b Obtain, evaluate, and communicate information about the ways heat energy is transferred and measured. Plan and carry out an investigation to gather data using thermometers to produce tables and charts that illustrate the effect of sunlight on various objects.

Students should follow the **Engineering Design Process.**

**Background/Problem:**

Engineers are always looking for a way to improve things. What if you wanted to make your oatmeal at home and take it to school for eat later for breakfast? You will need a way to keep it warm.

**Design Challenge:** Keep a tasty treat /breakfast (oatmeal) warmer for longer.

**Criteria:**

1. Your container needs to insulate the oatmeal.
2. You may use either newspaper or aluminum foil, but not both.
3. Measure the temperature of the oatmeal before you begin.

**Constraints**

Make sure you have a design plan before you start.

**Materials:**

Large plastic Ziploc bag

Small plastic Ziploc bag

Cup of pre-made instant oatmeal

Three sheets of newspaper or three sheets of aluminum foil

Thermometer

**Tools:**

Scissors

Crazy scissors

Staplers

Hole punch

Rulers

Paper/pencil for design planning

**Instructions:**

1. Get an adult to make some instant oatmeal and put it in a paper cup.
2. Use the thermometer to measure the temperature of the oatmeal.
3. Put the cup inside a small Ziploc bag and seal it up.
4. Fill the larger Ziploc bag with material that you think will save the most heat: **either** three sheets of newspaper or three sheets of aluminum foil.
5. Put the small bag into the larger Ziploc bag. Seal the large bag.
6. After fifteen minutes, use the thermometer to measure the temperature of the oatmeal to see how much heat was lost.

Extras:

Experiment by using other types of materials to insulate your oatmeal. Don't use anything that automatically adds extra heat or uses electricity, like a hot water bottle or a heating pad.

Challenge follow up:

Did you choose the aluminum foil or the newspaper? Why?

Did it keep your oatmeal warm?

If your invention didn't work, warm up your oatmeal and try using the material that you didn't choose.

If your invention did work, just dig in!