**Ancient Northern Plains Native American Structures**

**Materials required for Activities One, Two, Three and Four**

* **Gloves** (optional)
* **Large mixing bowl**
* **Flat cardboard** with the sides approximately 20 cm, cut off the flaps if present
* **Flat cardboard or trays** to build experimental roofs (need a 13 x 13 square per roof)
* **Swing-Arm Protractor** (can make a circle with a 7.5 cm radius)
* **Angle protractor**; measures angles in cm
* **A ruler** that can measures at least 6 cm
* **Scissors, knife, or wire cutter** to cut dowels and bamboo skewers
* **Spatula** to help pick up small frame sections (optional)
* **Small pebbles** for the fire pit
* **Spray bottles (50 ml or greater)**
* **Paper:** 2 sheets of 8 ½ by 11 inches, may be scrap paper as long as one side is clear.
* **Small plastic lids:** 2 lids approximately 10 cm in diameter from butter container, etc.
* **Pennies, beads, or other small objects** of the same weight to test the strength of the earth lodges
* **Heat Lamp** if the sun is not hot enough to dry the low earth lodges
* **Earth - Clay soil for 2 lodges :**16 cups of soil (dirt with few pebbles)
  + 1½ cup of Crayola Air-Dry-Clay
  + Enough water to make thick, damp mud
  + Approximately 3 cup grass shavings (lawn mower cuttings will work, better if dry)
* **Earth lodge frame for two lodges:** The dimensions for building the miniature lodges are approximately 0.5 cm per foot in a full-size lodge.

4 Wooden round dowels; 3/16 inch diameter

Approximately 30 – 40 bamboo skewers – 30.5 cm x 0.3 cm (12 in x 0.12 inches)

* **Roof Experimental Angle**: 9 pop sickle sticks per roof: total = 27 per activity
* **Tipi** – approximately 15 bamboo skewers

Yarn