Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Jan 2020

**Activity 1:**

Materials needed: yarn, 2 craft sticks, scissors

Timer/record keeper: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Team members will cut a yarn strip the length of the craft stick and tie it in a knot. Team members should make as many knots in one minute as they can. Record keeper will record the score of correctly made knots in the allotted time.

Knots made in one minute \_\_\_\_\_\_\_

Team members will cut 3 yarn strips the length of the craft stick, tie them together, and braid them together. Team members should make as many braids in one minute as they can. Record keeper will record the score of correctly made braids in the allotted time.

Braids made in one minute \_\_\_\_\_\_\_

**Interpretation of Activity 1**

If the knots and the braids represent natural resources being formed, which natural resource forms more quickly?

How does the rate at which a natural resource forms relate to whether it is a renewable or nonrenewable resource?

If 10 knots are normally consumed each minute, are the knots a renewable or nonrenewable resource? Explain.

If 10 braids are normally consumed each minute, are the braids a renewable or nonrenewable resource? Explain.

**Activity 2:**

Materials needed: 20 craft sticks, glue, yarn, scissors

Timer/record keeper: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part A**

Team members will glue 2 craft sticks together to make a plus sign. Make 5 glued plus signs total. Record keeper will record the number of craft sticks used.

Craft sticks used \_\_\_\_\_\_\_

**Part B**

Team members will tie 2 craft sticks together with yarn to make a plus sign. Make 5 tied plus signs total. Record keeper will record the number of craft sticks used.

Craft sticks used \_\_\_\_\_\_\_

**Part C**

Using the same materials, make as many bundles of 4 craft sticks as you can. Team members may glue the craft sticks together or tie them. Record keeper will record the number of craft stick bundles made, and the method of bundling them (glued or tied).

Craft stick bundles made \_\_\_\_\_\_\_ bundling method used in Part B \_\_\_\_\_\_\_

**Interpretation of Activity 2**

The craft sticks represent a natural resource, and the plus signs represent the used form of the natural resource. What is different about the natural resource in part A compared to the natural resource in part B?

How did being able to reuse the natural resource affect the consumption of the natural resource?

If a natural resource can be reused/recycled, is it more likely to be renewable or nonrenewable?

**Activity 3:**

Materials needed: 20 craft sticks, glue OR yarn, scissors

Repeat *either* part A and part C of activity 2 OR part B and part C of activity 2. Allow team members to choose whether to glue the plus signs (part A), or tie the plus signs (part B). The goal is to have the most leftover craft sticks as possible after making the same number of craft stick bundles as in activity 2, part C. Record keeper will record the number of craft stick bundles made, the number of excess craft sticks, and whether plus signs were made by gluing or tying.

Craft stick bundles made \_\_\_\_\_\_\_ excess craft sticks \_\_\_\_\_\_\_

craft sticks glued or tied when making plus signs \_\_\_\_\_\_\_

**Interpretation of Activity 3**

Why did you choose to ( glue / tie ) the craft sticks when making the plus signs?

How did ( gluing / tying ) the craft sticks influence the amount of craft sticks leftover?

What affect does reusing/recycling a natural resource have on the availability of the natural resource?

**Relating the Activities to the Real World**

Use the outcome of activity 1 to determine which of the following natural resources is represented by which of the materials from the activity.

Fossil fuels Apple trees

Knot =

Braid =

Use the outcome of activity 2 to determine which use of a natural resources is represented by part A, and which is represented by part B.

Deforestation of trees Using water in a car wash

Part A =

Part B =

What is the relationship between natural resource consumption and natural resource replacement?

How can you determine if a natural resource is renewable or nonrenewable?