Name _____

OPTIONAL SCIENCE PROJECT

For chapter 5 Energy

Due by Dec. 9, if participating

MATERIALS: large wooden or plastic spool and large rubber band, assorted sticks, conical faucet washer, coarse sandpaper

DIRECTIONS: Collect the materials to make a spool toy (directions on the back of this paper). You will need to do the following:

- Follow the directions to make the toy.
- Try the toy and get it to work well.
- Write a paragraph describing how energy is stored inside the toy and how energy makes the toy move.

After you have made the spool toy, try it out. Make changes if necessary to make it run well. Show your toy to the class and read your paragraph.

Use the following checklist for your project. When you have checked all the boxes in the first column, you are finished! Staple this paper to your paragraph.

Student		Teacher
☐	I made my toy.	☐
☐	I tried my toy and got it to work well.	☐
☐	I wrote about how energy is stored inside the toy.	☐
☐	I wrote about how energy makes the toy move.	☐
	Total	☐

Scoring Guide: **4** Excellent **3** Well Done **2** Good **1** Needs Work

Teacher Comments:

History Note

Long before large companies began making and selling plastic toys, families often made their own toys out of household materials. Children had as much fun making toys as they did playing with them. This toy, made from an empty spool of thread, became a popular "racer" before there were pull-back and electric remote-control cars.

Materials

- Large wooden or plastic spool and large rubber band, or
- Small wooden or plastic spool and small rubber band
- Assorted sticks, such as matchsticks, toothpicks, teriyaki skewers
- Conical faucet washer
- Coarse sandpaper

Directions

1. Push the rubber band through the hole in the spool so that a loop sticks out on either side.

2. Place a short piece of toothpick or matchstick through one loop and pull the other loop tight so that the stick is pulled against the side of the spool. (See diagram 1)

3. Place a conical faucet washer over the loose loop and press it against the other side of the spool. Metal or fiber washers will also work. (See diagram 2)

4. Insert one end of a longer stick into the loose loop. Holding the loop between the fingers of one hand, begin turning the stick and winding up the rubber band inside the spool. (See diagram 2)

5. When the rubber band is wound tight, place the toy on the floor, aim it, and let it go. (See diagram 3)

6. For more traction, use coarse sandpaper to roughen the "wheels."

7. Think of other ways to make the spool toy go faster and farther.

Diagram 1

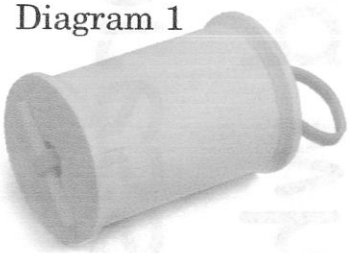

Diagram 2

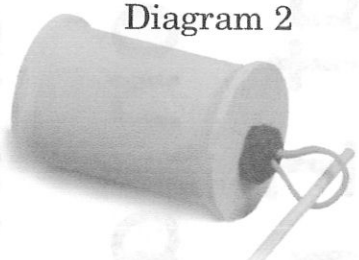

Diagram 3