



The Lord's Strength

Theme: When we are on the Lord's side, his strength is available to us.

Bible Verse: God is our refuge and strength, a very present help in trouble. (Psalm 46:1)

Materials Needed:

- Length of rope about 25 feet long
- Two sturdy broomsticks, poles, or PVC pipes
- Two or more volunteers

Bible Lesson

People are very interested in improving their health and strength. Physical fitness centers prosper

almost everywhere. These efforts are commendable, but physical strength is only temporary. How quickly it fades with age.

In contrast, the Lord's strength is permanent and readily available to us. This does not necessarily mean he gives us the ability to win races or lift weights. Instead, God's refuge and strength help us to have victory over the pressures of life. When troubles arise, the Christian has spiritual resources that include prayer, the Bible, and Christian friends. By trusting in Christ, we exchange our own limited strength for that of the Creator of the entire universe.

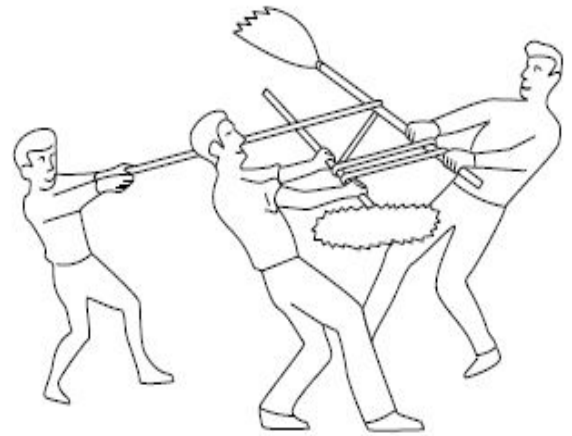
Science Activity

This activity shows how one person's strength can be greatly increased. It reminds us of extra strength that is available from the Lord. The activity requires at least two volunteers. You will show that you are stronger than both of them combined.

Have the two volunteers stand facing one another, each holding a sturdy broom or pole. After tying one end of a smooth rope (one that

slides easily) to one of the broomsticks, loop it around both sticks several times, keeping them about two feet apart. Now have the volunteers pull outward on the broomsticks. When you pull steadily on the free end of the rope the sticks should be drawn together, regardless of how hard your volunteers resist. The feat should also work well with four volunteers pulling against you.

You have actually made a block and tackle system, long used to gain what is called a mechanical advantage. Your pulling force is multiplied by the number of loops around the broomsticks; your volunteers don't have a chance. With a strong rope and the right arrangement of pulleys, it is possible to pull a car up a hill or even to pull down a tree. Just as you gain an advantage with the rope, the Lord's strength gives an advantage during difficult times.



Two broomsticks are loosely wrapped with rope. One person can outpull several others by pulling on the end of the rope to draw the sticks together.

Science Explanation

Suppose you and the four volunteers can each pull with a force of fifty pounds. Each broomstick will then be pulled outward with one hundred pounds. If there are five turns of rope around the sticks, your force will be multiplied to 250 pounds (5×50). Thus you have a 150-pound advantage. Some of this advantage will be lost due to the friction of the rope. If this loss is small, you can still easily outpull the volunteers.

Notice that two of the four volunteers are not really necessary. The experiment would be the same if one broomstick were permanently attached to a wall. By Newton's third law of motion, the wall will pull back (reaction) with a force equal to that of the volunteers (action force). However, the four struggling volunteers give a more impressive appearance.

This activity does not defy the conservation or constancy of energy. Instead, the advantage of a greater force is gained at the expense of a longer length of pull. As you draw the two broomsticks together, you will accumulate a coil of rope at your feet.