Review-
-What is a spring?
-How does a compression spring work?

Basketball Bot
Using Levers and springs together

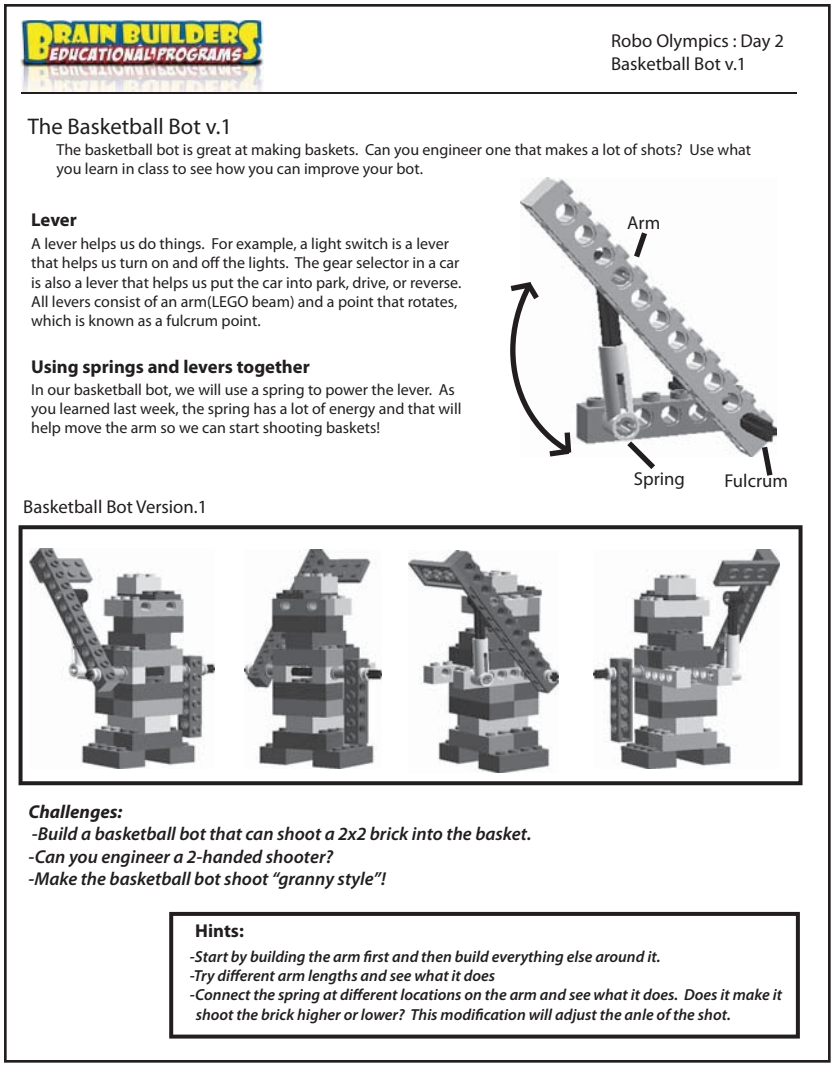
Pass out worksheet - go over worksheet with students.

Questions -
-What are other examples of levers?
-Our arms can be levers as well.
What are our arms powered by?

Build a basket ball hoop out of LEGO's. This is what the students will try to shoot their bricks in.

Using 2x2 bricks, students will try to make baskets with their basketball bot.

Show the sudents your example and how it works.



BRAIN BUILDERS EDUCATIONAL PROGRAMS

Robo Olympics : Day 2
Basketball Bot v.1

The Basketball Bot v.1

The basketball bot is great at making baskets. Can you engineer one that makes a lot of shots? Use what you learn in class to see how you can improve your bot.

Lever

A lever helps us do things. For example, a light switch is a lever that helps us turn on and off the lights. The gear selector in a car is also a lever that helps us put the car into park, drive, or reverse. All levers consist of an arm(LEGO beam) and a point that rotates, which is known as a fulcrum point.

Using springs and levers together

In our basketball bot, we will use a spring to power the lever. As you learned last week, the spring has a lot of energy and that will help move the arm so we can start shooting baskets!

Arm
Spring
Fulcrum

Basketball Bot Version.1

Challenges:
-Build a basketball bot that can shoot a 2x2 brick into the basket.
-Can you engineer a 2-handed shooter?
-Make the basketball bot shoot "granny style"!

Hints:
-Start by building the arm first and then build everything else around it.
-Try different arm lengths and see what it does
-Connect the spring at different locations on the arm and see what it does. Does it make it shoot the brick higher or lower? This modification will adjust the anle of the shot.

Challenge 1 - Individual build or team of 2

Engineer a basket ball bot that can make a basket from at least 2 feet away.

Challenge 2 - Individual or Team of 2

Can you make a basket from 3-4 feet away? Have students try different launch angles.

Challenge 3 - Team of 2

Try making a basketball bot using 2 springs or make it shoot "granny style". Who can make the longest shot?