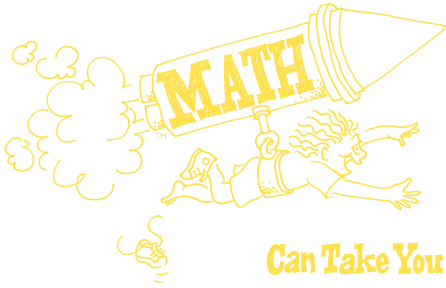


Activity 6: Go Figure

4th - 6th Grade



FOCUS AREA

Measurement

ACTIVITY TYPE

Active/Sports

Math Goal

Estimate height and body width

NUMBER OF STUDENTS

Pairs of children with a maximum of 20 children (10 pairs of 2 children)

TIME NEEDED

1 hour or two 30-minute sessions

OBJECTIVE

To define, estimate, and investigate measurement while creating a model of a pro basketball player.

MATERIALS

- Newspaper - about 45 full sheets of paper per team (or butcher paper)
- Pencils, washable markers or crayons - two color options per pair
- Tape measures - one per pair
- Rulers - one per pair
- Scotch tape
- **Optional Introduction Activity:** *Math Can Take You Places* video #001: "Measurements" & TV/DVD player

BEFORE YOU START

- Gather enough newspaper for each pair to have about 45 full-size sheets. Exclude the wingspan measurements if you would like to do the activity with less paper.
- Divide students into pairs to complete the activity. It is recommended that you group them in same-sex pairings.
- **Extra Background Information:**
 - Realistically, a 7.5-foot-tall male player would have a "wingspan" of around 7 feet, 6 inches and weigh between 200-230 pounds. A tall female player would be about 6.5 feet tall and have a "wingspan" of about 6.5 feet.

HOW TO START

Start by talking about height and ask the children about basketball players. "How tall do you think they are?" "What special accommodations do you think they would need because of their height?"

Optional Introduction Activity: Show the children KERA Video: *Math Can Take You Places* #001: "Measurement." Ask the children to focus on the size of the players and special accommodations the trainer mentions the players may need because of their height.

STEPS

Step 1

Tell the children that they are going to work in pairs to trace one of their bodies onto the newspaper. Ask them to tape together enough newspaper for them to draw one of their bodies with both arms fully extended

Step 2

Once the drawing is completed, have students use a straight edge to draw horizontal lines on their figures for the width of their head, chest, one arm, one thigh and both arms outstretched using the “Where to Measure” diagram as a guide. Do not measure the widths yet.

Step 3

Have students work together to estimate the widths in inches. Write their estimates at the left side of the lines in one color. Write the estimated height on the figure in feet and inches as well. The facilitator can check a few of the students' estimates for reasonableness.

Step 4

Now, have students actually measure the widths using a ruler or tape measure. Write the measurements on the right side of the line, using a different color than the one used for the estimate.

Step 5

Next, the pairs will use their actual measurements to help create a silhouette of a professional basketball player. Let students choose whether they want to create a male or female player. Each pair should start by taping together enough newspaper and marking the given height.

Step 6

Using their silhouette as a guide, work with the children to create the body for the player. Possibly emphasize proportions as you work. For example, if the students are about 4 feet tall, help them to see that the 7.5-foot male basketball player is about two times as tall as they are. They can apply that proportion to the rest of their measurements.

Step 6

When they are done, students should label the widths on the 7.5-foot silhouette. Cut the figures out and display all of them side by side.

WRAP UP

Discuss any strategies the students may have used to determine the measurements for the NBA models they created. (Possible strategies include multiplying all of their own measurements by 2.) Then have the students compare the NBA model to an average adult male (6 feet tall) or an average adult female (5 feet, 5 inches tall).

OPTIONAL ACTIVITIES

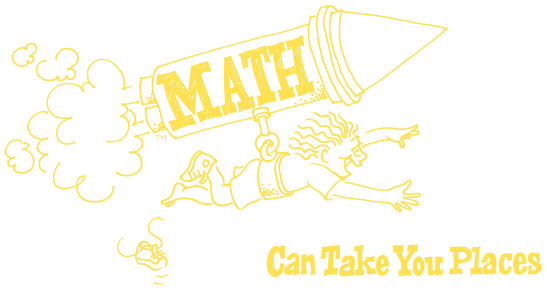
- Social Studies: Encourage the students to research the origins of the game of basketball. Let them share the most interesting facts in a class presentation.
- Science: People's heights are predetermined by a set of human codes called "genes." Students should use media resources to collect research on genes and, with the information collected, write reports to be presented to the class.
- Research what percentage of the body is water, blood, bone, etc. Add those statistics to the drawings of the student silhouettes.

SUGGESTED *MATH CAN TAKE YOU PLACES* CONNECTIONS

Mavs and Measurement

WEB RESOURCES

- For player stats and information: www.nba.com
- All about chromosomes and human genetics: <http://library.thinkquest.org/18258/chromosome.htm>
- Human Body reference pages: http://www.kidinfo.com/Health/Human_Body.html



Activity Cue Card

- Group students into same-sex pairs and distribute their materials: newspaper, two colors of markers/crayons, scotch tape.
- Pairs will tape newspaper together, then trace their bodies, arms fully extended, onto the paper.
- Next, pairs draw horizontal lines across the widths of their head, chest, one arm, one thigh, and arms fully extended following the diagram given. Then, the students will estimate the widths of these body parts and write answers to the left.
- Facilitator should check estimates for reasonableness, then give students rulers to record actual measurements to the right in a different color.
- Finally, pairs will use the actual measurements to create a silhouette of a 7.5-foot-tall NBA player out of the rest of the newspaper.