

**Next NBA Superstar  
K. Emblem and C. Gutierrez  
NSTEM PROJECT – Geometry**

**Well Defined Outcome**

The students will be able to measure and compare to assemble proportions between two different size similar body components

**Secondary Objectives**

G.11(A) Use and extend similarity properties and transformations to explore and justify conjectures about geometric figures

G.11(B) Use ratios to solve problems involving similar figures

**Materials Required**

Poster Boards (5 per group)

Measuring tapes

Scissors

Markers

Crayons

Brads

Calculators

Giant shoe

Construction paper

Accessories- yarn, fake fur, straws

Rulers

Elmo and projector

Full length mirror

**Safety Notes**

1. Don't use rulers as swords
2. Be careful of scissors. Don't cut yourself
3. Don't sniff markers. It will make you dizzy.

**Engagement -Day 1**

Funhouse pictures PowerPoint

Or Start with KWL 5-10 minutes

**Focusing question:**

**Using a full length mirror ...**

Do you think there is a connection between you and your image in the mirror?

Why is a full length mirror shorter than your height?

**Exploration -Day 1, 2**

Outside Shadow measurement Activity (comparing shadows with heights of objects)

**Focusing Question**



What kind of relationship is there between an object and its shadow?

**Explanation: Day 2**

We can solve relationships between similar figures by using proportions.

$$\frac{a}{b} = \frac{c}{d} \quad \text{where } ad = bc, \text{ using cross products (means-extremes).}$$

(Practice setting up and solving “real world” proportion problems)

**Extension: Day 3, 4**

Future NBA/WBNA Star: Divide students into groups of 3. Give each group the shoe of an NBA/WNBA star and have them use one of their group member’s measurements along with the measurement of the NBA/WNBA player’s shoe to create measurements of their “NBA/WNBA Star”. Group members will then draw their “NBA/WNBA Star” according to their calculations and then decorate their player. Group members should utilize proportions to arrive at their appropriate measurements for their “Star”. (Students will need to make many different measurements: overall height, hand length and width, foot length and width, arm length and width, leg length and width, torso length and width, neck length and width, head length and width, etc.).

**Evaluation: Day 5 or 6**

Test over similar figures ...

After all projects completed ... Have faculty/administration/central office personnel select NBA/WNBA All Star Team.

Extension Question: If you were selecting a team from the available NBA/WNBA Stars, who would you select? Would you only pick the tallest players? Why or why not?

Biology connection: Sometimes there are people who grow much taller than the average human ... people such as Shaq and the world’s tallest man are as much as 1 foot taller than their parents. How is this possible? Use what you know from biology to explain this anomaly?