Basketball Arcs

Newton’s Toy Box Activity 5

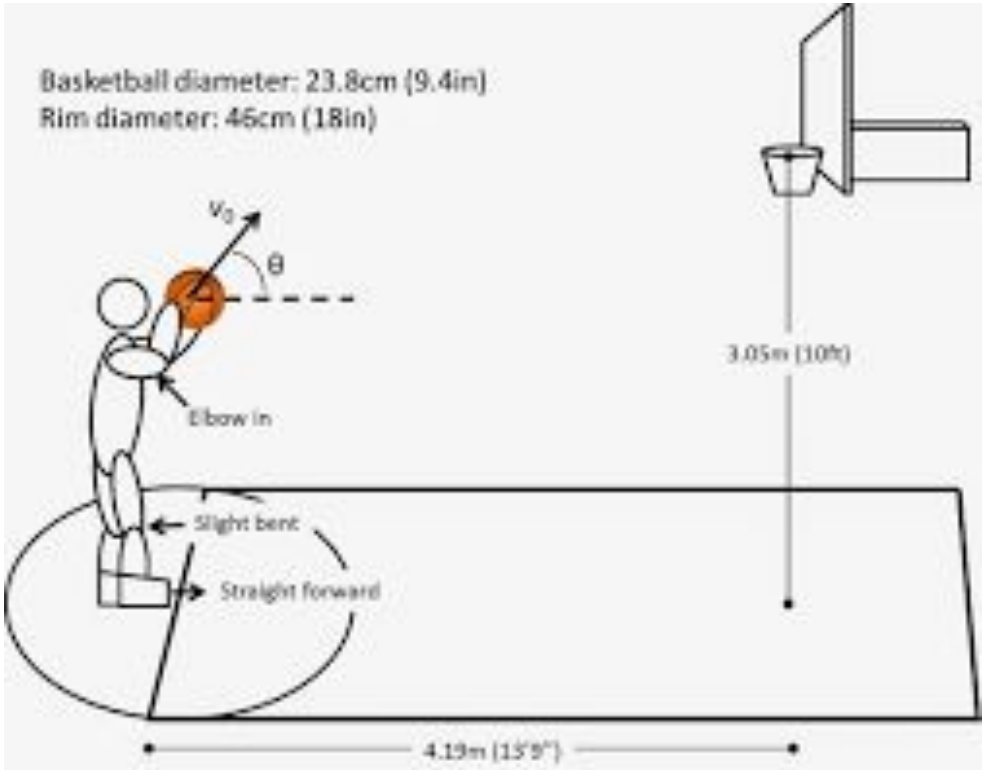
free fall, parabola

Where do you aim the ball when taking a free throw in basketball?

Rim?

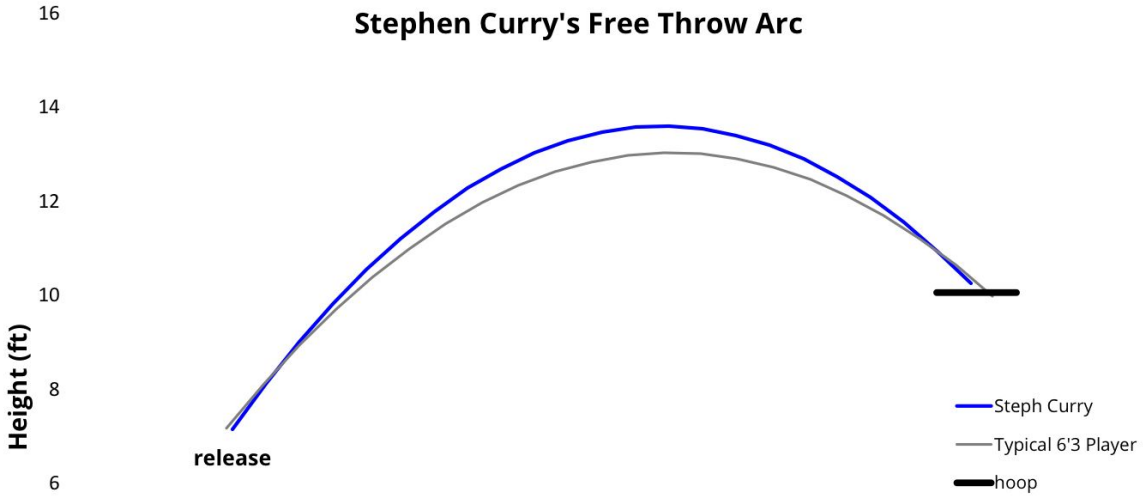
Backboard?

Basket?



https://i1.wp.com/aidanklobuchar.com/wp-content/uploads/2017/11/free_throw_mech.jpg

What does the path of the ball look like? What causes the ball to fall?



https://2.bp.blogspot.com/-uV2Bas1kwEw/VWOd9spH7sI/AAAAAAAAA0g/D2NtvYbDbkE/s1600/steph%2Barc.png

A **parabola** is an arc shape-a possible path of an object falling in a gravitational field.

What would be different for astronauts playing basketball in space?

Arcs are not possible in space because of the free fall environment. **Free fall** is the condition of an object falling in a gravitational field. In the case of orbiting astronauts, the astronaut, the objects in the shuttle or space station, and the shuttle or space station are all falling at the same rate, and thus “float”.

Astronaut Greg Harbaugh playing basketball in space

Watch the video at this link:

https://archive.org/details/sts-54_physics_of_toys_experiment

He plays basketball at 15 min 30 seconds.