Name: _____

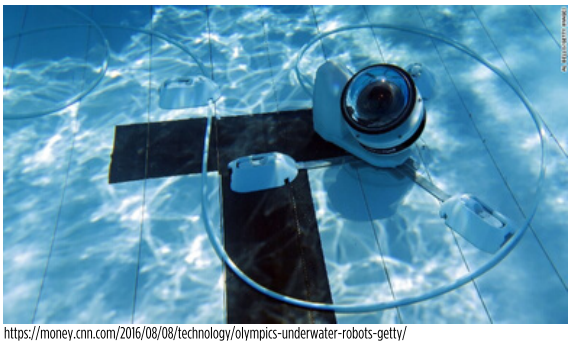
Calculating Area and Perimeter

An olympic photographer takes photographs during the Olympics. The Olympics is an international sporting event that happens every four years. Athletes from different countries compete against each other. There are summer and winter Olympics. Examples of summer sports are gymnastics, swimming, and track and field. Examples of winter sports are skiing, ice skating, and bobsledding.

Today, you are going to be an olympic photographer during the summer Olympics. You will first learn about cameras used during the Olympics. Then, you will find the area and perimeter of the spaces where different sports are held. That way, you can know how big the space is when you use the camera! Lastly, you will design a new camera that can be used during one of the sports.

Step 1: Learn about Olympic Photography

Did you know that some Olympic photographers use robots as cameras? The photographers control the robots with a remote control. For example, the photographers move the robot under water to take pictures while an athlete is swimming. Photographers can also move the robot around a court while athletes are playing tennis. Here is an example of a robot that goes under water to take pictures while athletes are swimming.



https://money.cnn.com/2016/08/08/technology/olympics-underwater-robots-getty/

It is important for olympic photographers to know the size of the arena or pool before an event starts. That way, they can know where the robot needs to move during the event! To figure out the size of an arena or pool, they calculate the area and the perimeter.

Area is the amount of space the inside of the shape takes up. To find the area of a rectangle, use the formula:

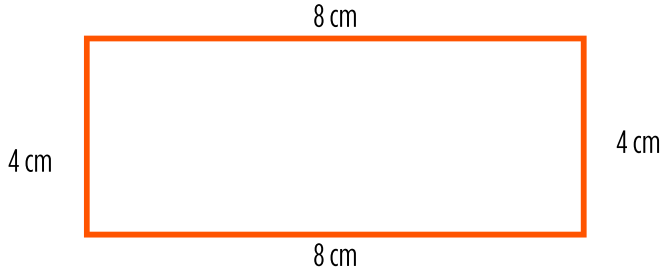
Width x Length = Area.

The **perimeter** is the distance around the outside of a shape. To find the perimeter, use the formula:

l + l + w + w = perimeter or 2l + 2w = perimeter

Here is an example:

The rectangle pictured here has a length of 8 cm and a width of 4 cm.



To find the area, we use the formula: (length x width = area)

$8 \times 4 = 32\ cm^2$

To find the perimeter, we use the formula: (l + l + w + w= perimeter)

8 + 8 + 4 + 4 = 20 cm

MATH CAREER ADVENTURES

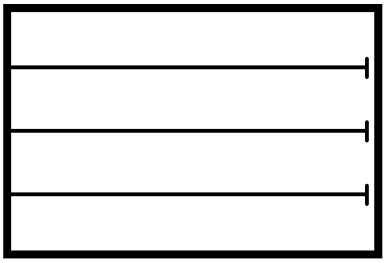
Name: _____

Calculating Area and Perimeter

Step 2: Find the Area and Perimeter of Different Sports Arenas

Below, you will see the lengths and widths of three different Olympic arenas: a swimming pool, gymnastics floor, and tennis court. Look at the arenas and calculate the area and perimeter of each one. Don't forget to show your work and write your answers at the bottom of each box.

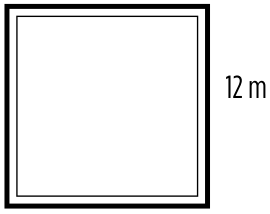
Pool



Area: _____

Perimeter: _____

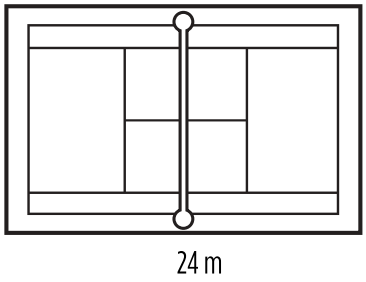
Gymnastics floor



Area: _____

Perimeter: _____

Tennis court



Area: _____

Perimeter: _____

Step 3: Design a new camera

Imagine that you have been chosen to design a new robot to take pictures at the next Olympics! Choose a summer or winter sport from the box below. Then, design a robot camera and a controller that will let you take pictures of athletes while they are competing! Label different features on your camera. For example, your camera might have wheels so it can move across a tennis court.

Sports to choose from:

Summer Sports:
- Basketball
- Swimming
- Tennis

Winter Sports:
- Hockey
- Figure skating
- Curling

Name: _____

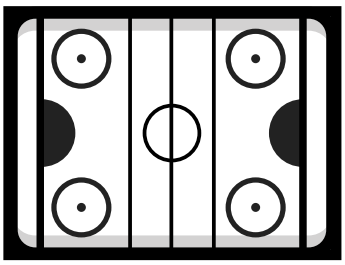
Calculating Area and Perimeter

Drawing of camera and controller:

Extra Time?

Below, you will see the lengths and widths of three different Olympic arenas: a hockey rink, volleyball court, and basketball court. Look at the arenas and calculate the area and perimeter of each one. Don't forget to show your work and write your answers at the bottom of each box.

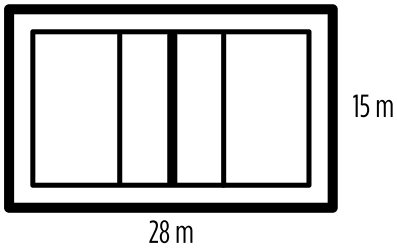
Hockey Rink



Area: _____

Perimeter: _____

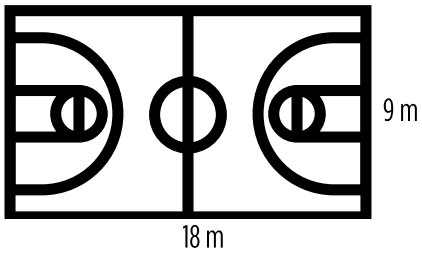
Volleyball Court



Area: _____

Perimeter: _____

Basketball Court



Area: _____

Perimeter: _____

MATH CAREER ADVENTURES