



SASKATCHEWAN  
SPORTS  
HALL OF FAME

# STEM in sports

## Math

Have you ever wondered about how Science, Technology, Engineering and Math connect to sport? They are, in fact, a very large part of sport. In this lesson we will focus on **Math, Probability and Statistics in sport**.

Teachers: Please use this as a starting point. Modify and add in any way that best suits your classroom.

### Grade focus:

All grades.

### Objective:

To learn about how Math is used in sports. Students will have an activity to perform either in our galleries or in the classroom.

### Educational Outcomes:

NK.1	N1.1	N2.1	SS3.3	SP4.1	SP5.1	SP6.1	SP7.2
NK.3	N1.3	P2.1	SP3.1	P4.1	SP5.2	SP6.2	SP7.1
NK.5		SP2.1		SS4.2	SP5.3	SS6.2	SP7.3
SSK.1				N4.4	SS5.1		
					SS5.2		
SP8.1	SP9.2						
SP8.2	SP9.3						
P8.1							

### Lesson:

#### Grades K-3:

- Count the number of balls the students see while touring the Saskatchewan Sports Hall of Fame.
  - How many different types of balls do they see?
- If the students are in the classroom, provide them with the colouring sheet attached.
  - How many different pieces of sport equipment can they find and colour?
- Using an assortment of equipment in our education department or from your gym at school, have the children compare the items and sort them in groups.
  - Which are the same heights?
  - Which ones are heavy?
  - Which ones have a similar shape?
  - Sort them according to colour?
  - How else could they be sorted?
  - Older grades could graph the results
  - What patterns could you make?
- Children can try the “counting on” worksheets in our “extra activities” section on our website [www.sasksportshalloffame.com](http://www.sasksportshalloffame.com).

#### Grades 4-8:

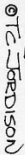
- Graphing Olympic data: Canada's medals for the Summer Olympics since the Olympics began
  - Research all the medals Canada has won in the Summer Olympics since they began in 1896. Graph those results in a bar graph.
  - Investigate further as to how many gold, silver and bronze medals won. How you could graph those results? What type of graph would work best for doing this?
  - Do some more digging and find out how many of these medal winners were men and how many were women? Create a bar graph to show this year by year and a circle graph to represent the totals.
  - Predict how many medals Canada should win in the 2021 Olympics.
- Explore the dimensions of various sporting fields. (see attached)  
<http://www.sportsknowhow.com/dimensions/index.html>
  - Fill in the chart with the different measurements and answer the problems given. (see attached)

#### Grades 9-12:

- How is probability used in sport?
- Go over the different types of probability.

<b>experimental probability</b>	is probability based on data collected from repeated trials. For example, to find the experimental probability of winning a game, one must play the game many times, then divide the number of games won by the total number of games played.
<b>probability</b>	is the measure of how likely it is for an event to occur. The probability of an event is always a number between zero and 100%.
<b>theoretical probability</b>	is the theory behind probability. You don't actually conduct an experiment, you use your knowledge about a situation, some logical reasoning, and/or known formula to calculate the probability of an event happening.

- Pick a sport you would like to analyze.
- Look for things like the chances to win against a particular player or team, chances to make a "hole in one" in golf, chances of making a basket in basketball, or anything else connected with probability that they may find in the sport they choose.
- Design your own questions and answers and present to the rest of the class to solve.



**Come back with your friends and family to visit us. We're always changing!**

## Sports Field Measurements

Sport Field	Measurements; length and width	Perimeter	Area	Which have the same perimeter and area?
Football				
Hockey				
Baseball				
Cricket				
Soccer				
Basketball				
Softball				
Rugby				

Short Answer questions:

1) Which surface has the largest area?

2) Which surface has the largest perimeter?

3) If the football field had a height of 24m, what would be the volume of a football field?

4a) If a player were to run the bases of the baseball field, how far would he/she have run?

b) If that same player were to run the bases of a softball field, how far would he/she have run?

c) What is the difference?

5) Pick another sport and calculate its measurements, length, width, area and perimeter.