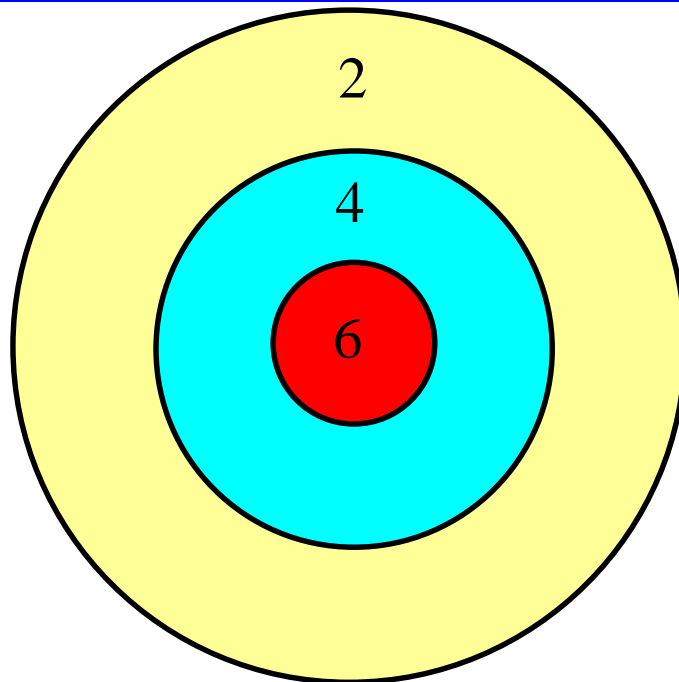




INVESTIGATION



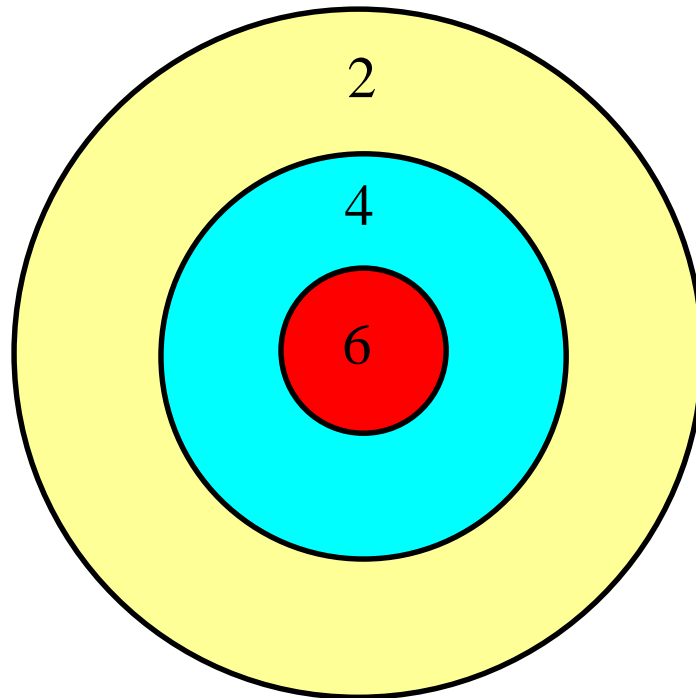
Bull's eye



MathSphere

Bull's Eye Investigation

Starter



You are allowed three darts to throw at the board.

A dart in the yellow area scores 2 points.

A dart in the blue section scores 4 points.

A dart in the red, bull's eye, scores 6 points.

How many different totals could you score?



I reckon I could get them all in the bull's eye!

Some Ideas

Work in a methodical way, recording your results carefully as you go.

What is the lowest possible score you could get with all three darts counting?

What is the highest score you could get?

Try to find as many rules and patterns as you can.

Think how you could display your results clearly.

Can you get an odd number score?

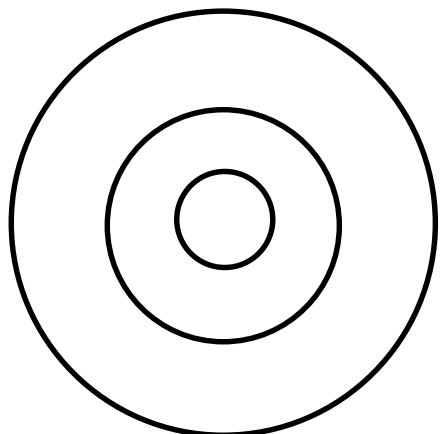
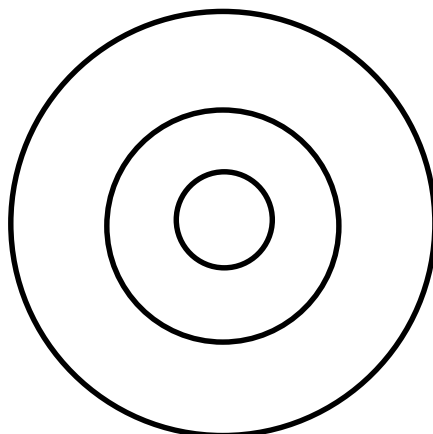
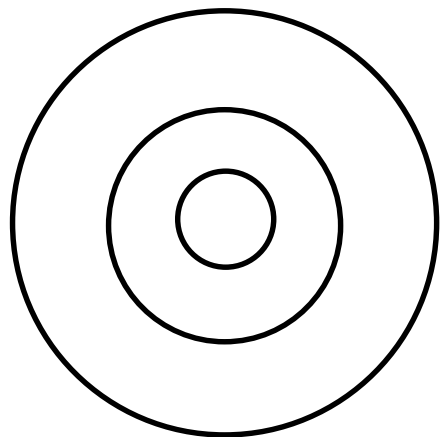
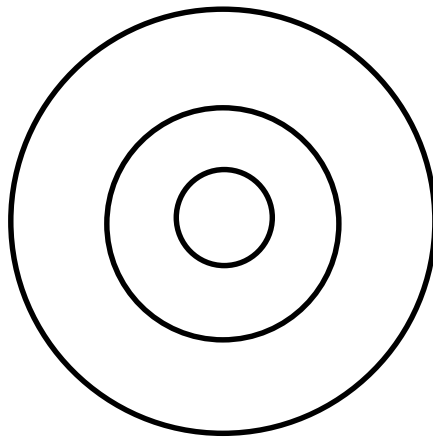
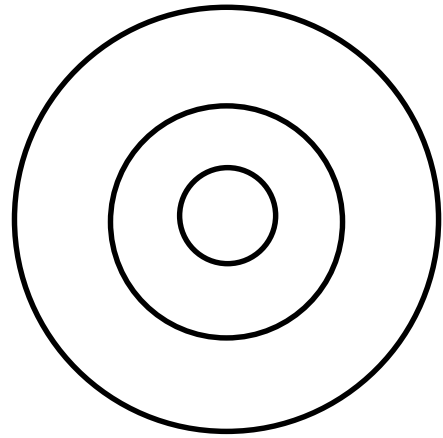
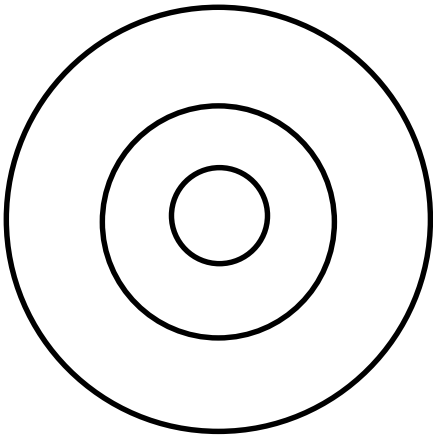
Is there more than one way of getting some scores?

How do you know when you have got all the possible scores?

What would happen if you changed the target scores?

What would happen if you had four darts?

What would happen if you had another circle to score in?



Answer Guide

Here are some possible answers and notes for guidance.

This is a good investigation for developing the simple addition skill of adding three numbers.

It is also a good introduction to working in a logical way - starting with all three darts in the outer ring, scoring 2 each and then finding all other possibilities:

$$2\ 2\ 2 = 6$$

$$2\ 2\ 4 = 8$$

$$2\ 2\ 6 = 10$$

$$2\ 4\ 2 = 8$$

$$2\ 4\ 4 = 10$$

$$2\ 4\ 6 = 12$$

$$2\ 6\ 2 = 10$$

$$2\ 6\ 4 = 12$$

$$2\ 6\ 6 = 14$$

$$4\ 2\ 2 = 8$$

$$4\ 2\ 4 = 10$$

$$4\ 2\ 6 = 12$$

$$4\ 4\ 2 = 10$$

$$4\ 4\ 4 = 12$$

$$4\ 4\ 6 = 14$$

$$4\ 6\ 2 = 12$$

$$4\ 6\ 4 = 14$$

$$4\ 6\ 6 = 16$$

$$6\ 2\ 2 = 10$$

$$6\ 2\ 4 = 12$$

$$6\ 2\ 6 = 14$$

$$6\ 4\ 2 = 12$$

$$6\ 4\ 4 = 14$$

$$6\ 4\ 6 = 16$$

$$6\ 6\ 2 = 14$$

$$6\ 6\ 4 = 16$$

$$6\ 6\ 6 = 18$$

3 counters to put in the circles may be of help - children can then move one counter to make the next possibility.

Encourage children to think about how they can display their results so that it is clear what they have done and that they have not repeated any combinations.

Some interesting questions can arise from this:

is $2\ 2\ 4$ the same as $2\ 4\ 2$?

Which total occurs most frequently?

Which total occurs least often?

The numbers can be changed - a good idea to use all odd numbers and look at the pattern of odd and even answers.

The number of rings could also be changed, but this makes for considerably more possibilities.