# Circle properties

## Year 8 MATHS

### Australian curriculum Learning objectives

* [ACMMG197](http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG197)[[1]](#footnote-1):Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area.

### Resources required

* [*Circles: radius, diameter and circumference*](http://www.youtube.com/watch?v=jyLRpr2P0MQ&cc=1)*[[2]](#footnote-2)* captioned online YouTube clip plus suitable projection facilities
* [*Area of a Circle*](http://bit.ly/Ihs0Y5)*[[3]](#footnote-3)* captioned online YouTube clip
* [Circle worksheet](http://www.capthat.com.au/sites/www.capthat.com.au/files/Circles%20worksheet.docx)[[4]](#footnote-4)
* Student geometry kits

Lesson outcome: Students learn to identify key features of a circle and calculate the circumference and area of a circle.

#### Lesson outline:

1. Introduce lesson by reminding students that *area* refers to the amount of space which something “takes up”. Hold up or point to something which is shaped like a circle and explain that their methods for finding the area of a square or rectangle do not apply to finding the area of a circle, and that today they will learn how to measure a circle’s area.
2. Explain that first they will look at the basics of a circle, and how they can calculate the circumference (the circle perimeter). View *Circles: radius, diameter and circumference* video.
3. To confirm students understanding of the content, demonstrate finding the circumference of a circle on the board.
4. Students revise key relevant terms by brainstorming the meanings of the following: molecular, properties, radius, circumference, diameter, pi etc. This brainstorm should be displayed on the board for all to see.
5. Provide students with worksheets and indicate that they should complete the page which is labelled ‘Circle properties’. Take student suggestions as to the answers to the questions.
6. Show students clip about *Area of a Circle* clip.
7. Students then complete rest of worksheet and suggest answers as class.
8. Explain to students that there are more complex questions which require the use of the circle formulas. Display the following problem on screen:

Kate wants to bake a cake in the shape of a donut. She has decided to make a regular circle-shaped cake and then remove a circle shape from the centre of the cake. If the diameter of the whole cake is 20cm, and the diameter of the circle which Kate removes is 8cm; what will be the area of the donut shape?

1. Work through problem with students, taking suggestions as to how it might be solved.

HOMEWORK/EXTENSION

### Students design their own creative maths problem which must make use of the circle formulas. In the next class, students trade problems and then mark them together.

### Opportunity for further activity

Allocate students a range of circular objects to measure in the classroom and in the playground. This practical task could include measuring the circumference of the school’s water tank using a trundle wheel, and deducing the area of the base of the water tank from this information.

1. http://www.australiancurriculum.edu.au/Curriculum/ContentDescription/ACMMG197 [↑](#footnote-ref-1)
2. http://www.youtube.com/watch?v=jyLRpr2P0MQ&cc=1 [↑](#footnote-ref-2)
3. http://bit.ly/Ihs0Y5 [↑](#footnote-ref-3)
4. http://www.capthat.com.au/sites/www.capthat.com.au/files/Circles%20worksheet.docx [↑](#footnote-ref-4)