

Varied Fluency – Circles

National Curriculum Objectives:

Mathematics Year 6: (6G5) [Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius](#)

Differentiation:

Developing Questions to support comparing and making equal groups. Using 2 or 3 equal groups of less than 5.

Expected Questions to support comparing and making equal groups. Using 3 equal groups of less than 10.

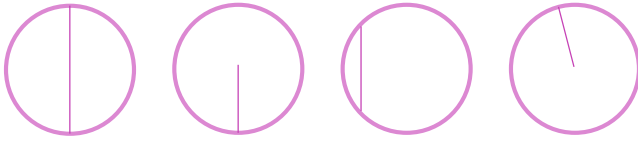
Greater Depth Questions to support comparing and making equal groups. Using 3 or 4 equal groups of less than 10.

More [Year 6 Statistics](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Varied Fluency – Circles

1a. In each image, mark the approximate centre of the circle.

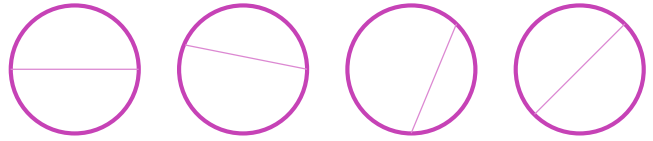


Tick all circles which show a radius.



VF

1b. In each image, mark the approximate centre of the circle.



Tick all circles which show a diameter.



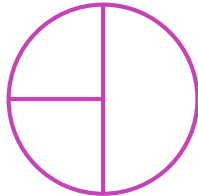
VF

2a. Use lines to attach the labels to the correct part of the circle.

Centre

Radius

Diameter



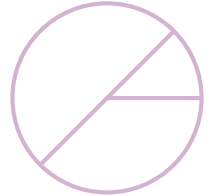
VF

2b. Use lines to attach the labels to the correct part of the circle.

Circumference

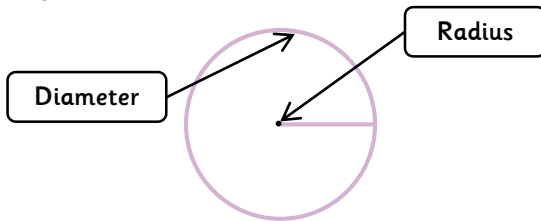
Diameter

Radius



VF

3a. Spot the 2 errors.

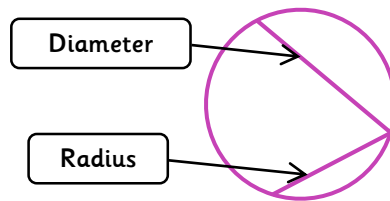


Describe the errors you have found.



VF

3b. Spot the 2 errors.



Describe the errors you have found.



VF

4a. Use the radius to find the diameter of each circle.

Radius	Diameter
4m	8m
32cm	
54m	



VF

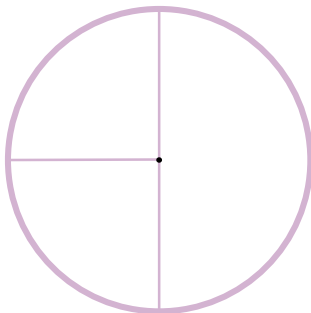
4b. Use the diameter to find the radius of each circle.

Radius	Diameter
17cm	34cm
	60mm
	48m



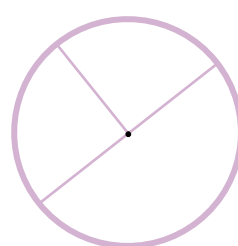
VF

5a. Use your ruler to measure the radius and diameter.



VF

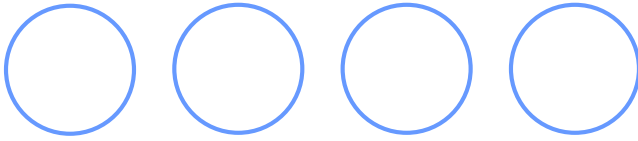
5b. Use your ruler to measure the radius and diameter.



VF

Varied Fluency – Circles

6a. In each image, mark the approximate centre of the circle.

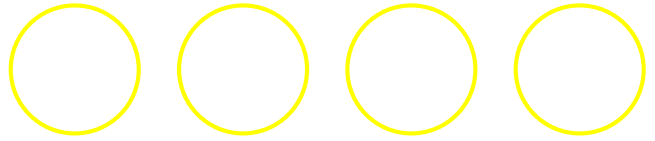


Draw a line from your centre to the outer side of the circle. What is the name of this line?



VF

6b. In each image, mark the approximate centre of the circle.



Draw a line from one side of your circle to the other passing through your centre mark. What is the name of this line?



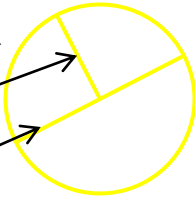
VF

7a. Complete the labels of the parts of the circle.

C _ _ _ _ e

_ _ _ ius

D _ a _ _ er



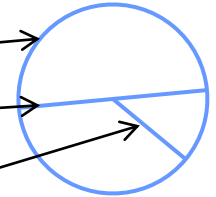
VF

7b. Complete the labels of the parts of the circle.

C _ _ _ _ feren _ e

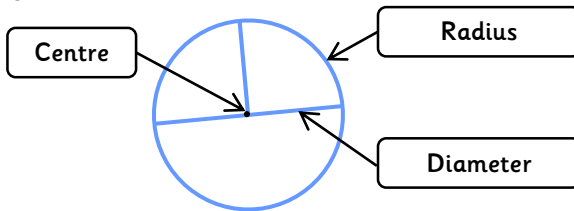
Diam _ _ _ r

R _ _ _ _ s



VF

8a. Spot the errors.

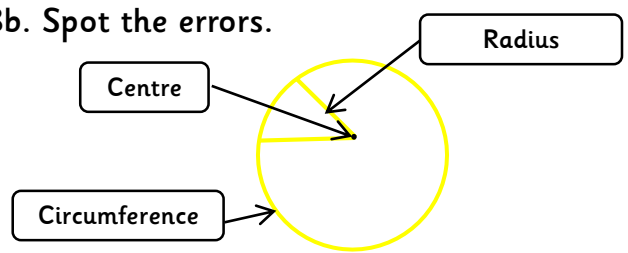


Describe the errors you have found.



VF

8b. Spot the errors.



Describe the errors you have found.



VF

9a. Use the radius to find the diameter of each circle.

Radius	Diameter
75m	
124mm	
96cm	
39m	



VF

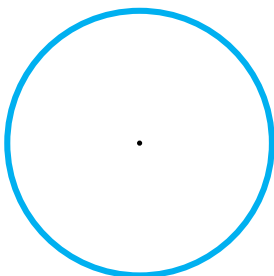
9b. Use the diameter to find the radius of each circle.

Radius	Diameter
	89m
	103cm
	65mm
	87cm



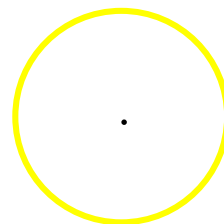
VF

10a. Use your ruler to draw and measure the radius and diameter.



VF

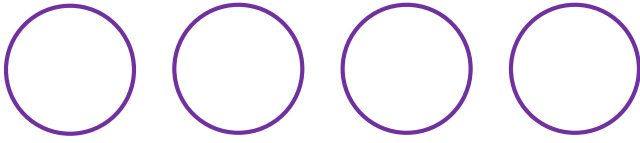
10b. Use your ruler to draw and measure the radius and diameter.



VF

Varied Fluency – Circles

11a. Use your ruler to mark the centre of the circle.

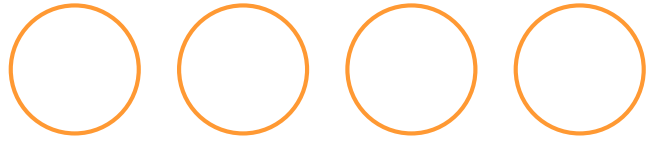


Draw a different radius in each circle.



VF

11b. Use your ruler to mark the centre of the circle.

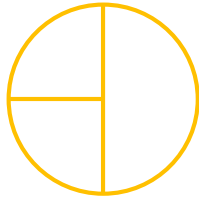


Draw a different diameter in each circle.



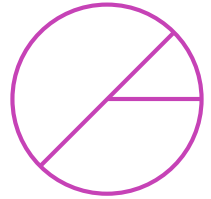
VF

12a. Write the labels of the parts of the circle and attach to the diagram.



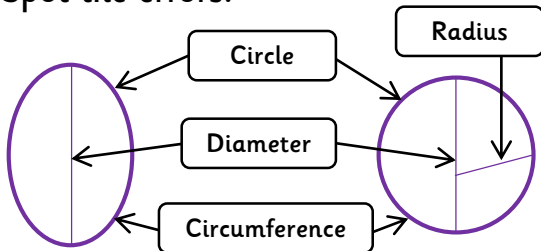
VF

12b. Write the labels of the parts of the circle and attach to the diagram.



VF

13a. Spot the errors.

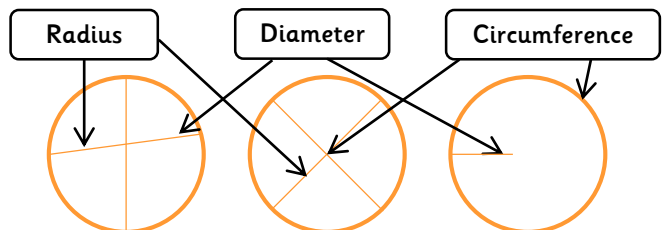


Describe the errors you have found.



VF

13b. Spot the errors.



Describe the errors you have found.



VF

14a. Use the radius (r) to find the diameter (D) of each circle.

r	D
236m	
409cm	
42.8m	
425mm	cm
56.2mm	cm



VF

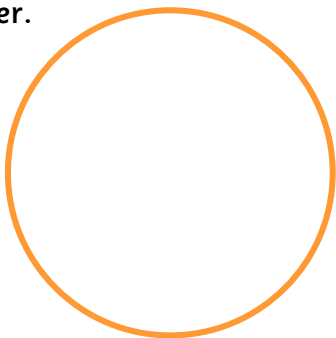
14b. Use the diameter (D) to find the radius (r) of each circle.

r	D
	569m
	43.8m
	43.06cm
cm	4862mm
cm	831mm



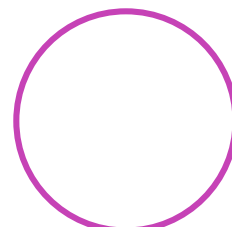
VF

15a. Use your ruler to measure the radius and diameter.



VF

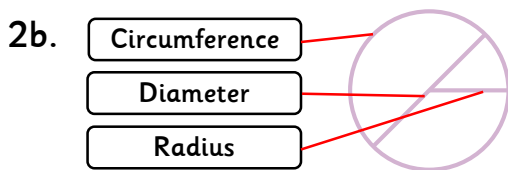
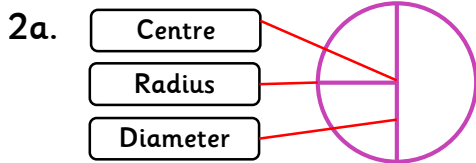
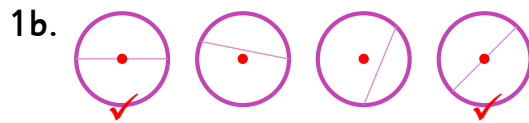
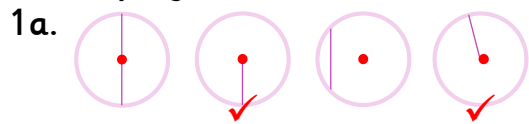
15b. Use your ruler to measure the radius and diameter.



VF

Varied Fluency – Circles

Developing



3a. The centre is labelled as Radius which should be on the line from the centre to the side of the circle. The circumference is labelled as the diameter, however the diameter isn't shown on this diagram.

3b. The diameter and radius are both mislabelled, the diameter would need to pass straight from side to side through the centre of the circle. The radius would need to go straight from the centre to the side of the circle.

4a.

Radius	Diameter
4m	8m
32cm	64cm
54m	108m

4b.

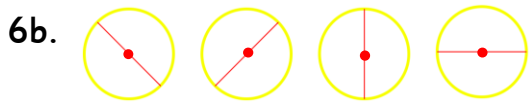
Radius	Diameter
17cm	34cm
30mm	60mm
24m	48m

5a. This answer depends on your printer settings but the answer should be: 2cm radius, 4 cm diameter.

5b. This answer depends on your printer settings but the answer should be: 1.5 cm radius, 3 cm diameter.

Varied Fluency – Circles

Expected



7a.

Circle

Radius

Diameter

7b.

Circumference

Diameter

Radius

8a. The radius label is pointing to the circumference and should be pointing to the shorter line which runs between the centre and the side of the circle.

8b. The centre point has been placed too high and is not the mid point of two diameter lines. Therefore neither of the lines running from that point to the side can be labelled 'radius'. A radius line would need to run from the centre of the circle to the outer sides.

9a.

Radius	Diameter
75m	150m
124mm	248mm
96cm	192cm
39m	78m

9b.

Radius	Diameter
44.5m	89m
51.5cm	103cm
32.5mm	65mm
43.5cm	87cm

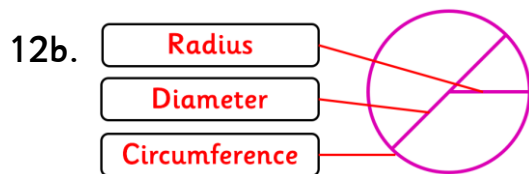
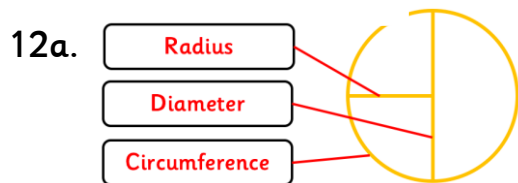
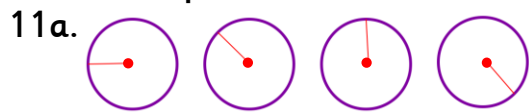
10a. This answer depends on your printer settings but the answer should be: 1.75cm radius, 3.5cm diameter

10b. This answer depends on your printer settings but the answer should be: 1.4cm radius, 2.8cm diameter

classroomsecrets.com

Varied Fluency – Circles

Greater Depth



13a. The first shape is an oval and therefore the terminology of a circle cannot be applied. The label for the radius is inaccurate. The line goes from the diameter to the outer side, but not from the middle of the diameter (the centre of the circle), therefore it is not a radius.

13b. The diameter label is not pointing to the correct line in the first shape as the line does not go through the centre of the circle, in the third shape the line does not touch both sides of the circle. In the first shape the radius label is not pointing to the radius. In the second shape, the circumference label is not pointing to the circumference.

14a.

r	D
236m	472m
409cm	818cm
42.8m	85.6m
425mm	85cm
56.2mm	11.24cm

14b.

r	D
284.5m	569m
21.9m	43.8m
21.53	43.06cm
243.1cm	4862mm
41.55cm	831mm

15a. 2.15cm radius, 4.3cm diameter

15b. 1.45cm radius, 2.9cm diameter