Wrenn School Mathematics Department

## Investigating Circles

This pack of cards gives you some activities to help you to discover some of the properties of circles using
***The Geometer's Sketchpad***.

**Take your time**.
Do not move onto the next card until you are sure that you have found out as much as you can from the card you are working on.

For each Card:

Use the **Text** tool  to:
Include your name.
Record any conjectures that you have made.

Use ***Save As*** from the **File** menu to save the sketch you create.

Try to **prove** any conjectures you make.

**1**

- Construct a circle.
- Construct a triangle whose vertices all lie on the circumference. This could be called a cyclic triangle.
- Make some conjectures about the angles you have created.

**2**

- Continue with the sketch created from Card 1, with a cyclic triangle.
- Construct an isosceles triangle with the *odd* angle at the centre of the circle. Do not construct any new points on the circumference.
- Investigate the angles and make conjectures.

**3**

- Start with a new sketch
- Construct a cyclic quadrilateral. (All the vertices must lie on the circumference of the circle.)
- Find out as much as you can about the angles in cyclic quadrilaterals.

**4**

- Start with a new sketch.
- Construct a circle and one radius.
- Construct a line, through the point where the radius meets the circumference, which is perpendicular to the radius (a tangent).
- Investigate.

**5**

- Continue with the sketch created from Card 4
- Construct a second radius and the tangent where this radius meets the circumference.
- Investigate.

**6**

- Construct a circle.
- Construct a triangle whose vertices are all on the circumference of the circle.
- Construct a tangent to the circle through one of the vertices of the triangle
- Find out as much as you can about the angles in this sketch.