

# Circles

By CL Tam

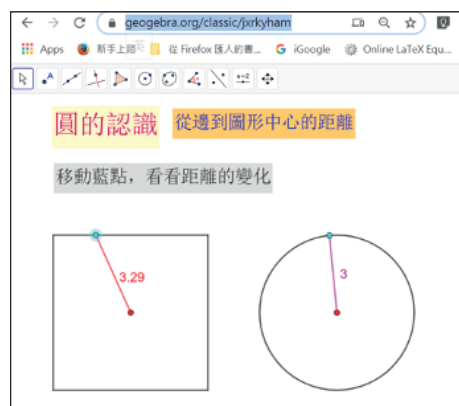
## RATIONALE OF THE DESIGN

Non-Chinese speaking students, like all other students, are willing to explore and discover knowledge by themselves.

## LEARNING AND TEACHING STRATEGIES

Finding the uniqueness of a circle

<https://www.geogebra.org/classic/jxrkyham>



- By moving two points in blue (cyan), students may observe that the distance from the centre of a circle to its circumference is a fixed value. Others figures do not have such property.
- Circular paper and square paper are given to each student. They are asked to fold the figure into two equal parts which can be overlapped. The creases formed are lines of symmetry of the figures.
- Students will discover that a circle has as many lines of symmetry as you like while a square only have 4 lines of symmetry.
- Other figures like rectangles, isosceles triangles and pentagons could be explored.

## LEARNING TARGETS

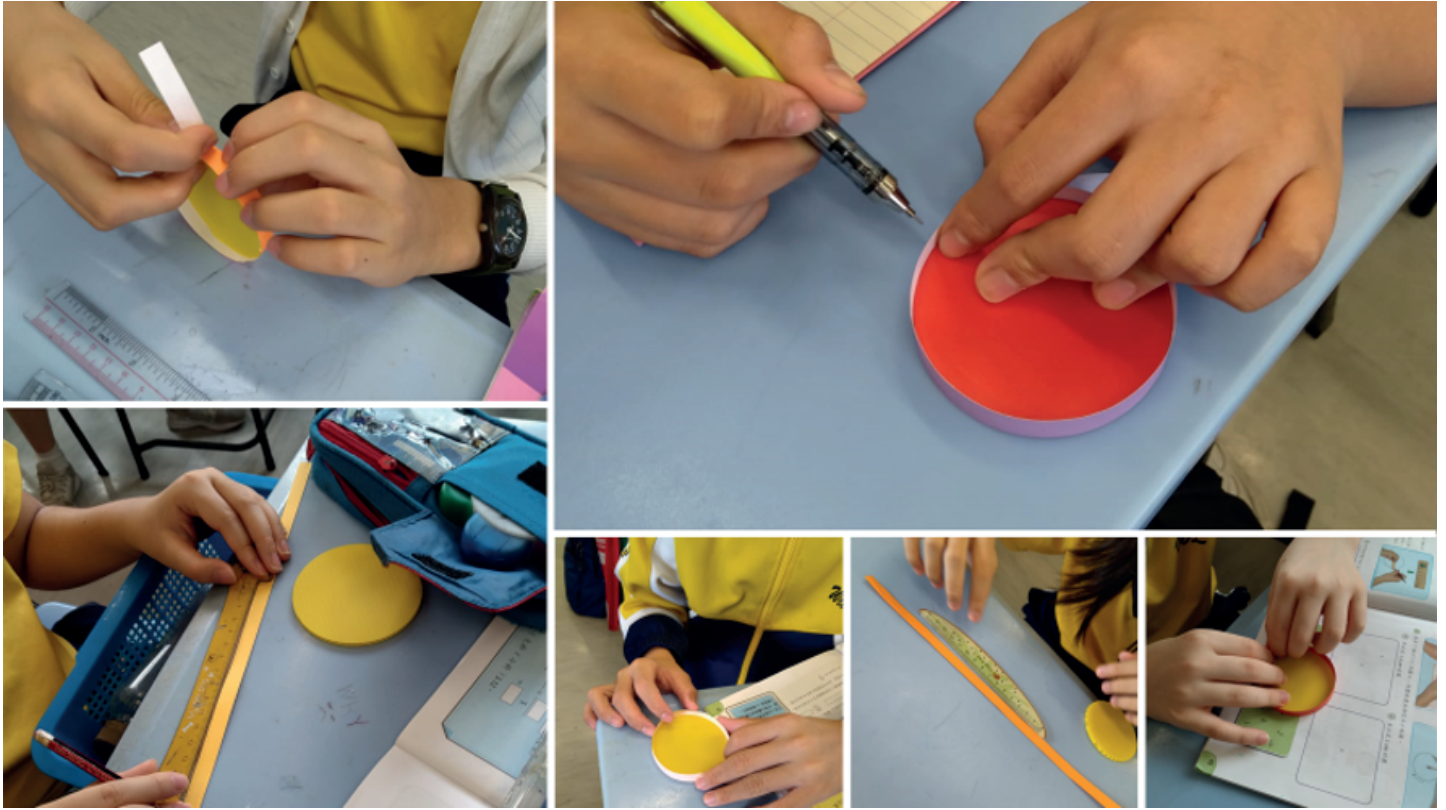
1. Grasp some key properties of a circle
  - Fixed distance from centre
  - Infinite number of lines of symmetry
2. Grasp the idea of  $\pi$ 
  - A fixed number proportion to diameter
  - Such value is approximately 3

## UNDERSTANDING THE CONCEPTS OF $\pi$

- Circular discs of different diameters are prepared for students to measure. Paper strips are provided to facilitate the measuring process.
- Discs instead of paper are used. Such arrangement will speed up the measuring process while reducing the measuring errors.
- Students are instructed to measure the diameter and circumference of each disc. A table is prepared to record the values found.
- Students are required to compute  $\frac{\text{circumference}}{\text{diameter}}$  for each disc. By summarising the results, students may identify a constant number *a little bit larger than 3*.
- If time allows, it is strongly suggested that the following values should also be computed and recorded so that the value of  $\pi$  will be more outstanding.

(The following sets of values do not have any unchanged properties.)

- circumference x diameter
- circumference + diameter
- circumference - diameter



## SUPPORTING MATERIALS (AVAILABLE IN CHINESE ONLY)

Please refer to the other document in this Resource which contains the idea of teaching, link to GeoGebra Apps, and worksheets for the exploratory activities.

