

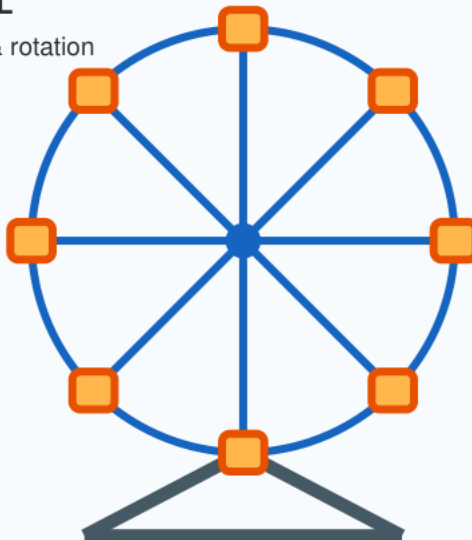
WORKING FERRIS WHEEL

Maths of Angles, Radius & Rotation

A simple, interactive school exhibition model

WORKING FERRIS WHEEL

Radius, circumference, angles & rotation



Each cabin completes one full turn = 360°

THE IDEA: A Ferris wheel is a perfect way to see **circles + angles + rotation** in real life.

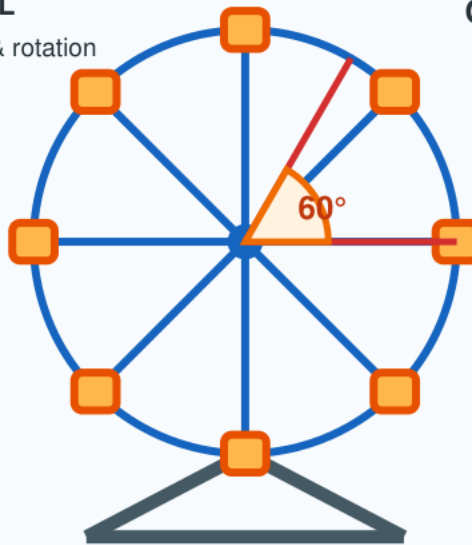
What students can demonstrate

■ Circle & radius • ■ Central angles • ■ Rotation • ■ Circumference • ■ Equal spacing

1. THE EASY MATH

WORKING FERRIS WHEEL

Radius, circumference, angles & rotation



CENTRAL ANGLE

Each cabin completes one full turn = 360°

One complete rotation = 360°

If there are 8 equally spaced cabins:

$360^\circ \div 8 = 45^\circ$ between neighbouring cabins.

Circle formulas

Circumference = $2\pi r$

Angle turned = (part of circle) $\times 360^\circ$

Example: If the wheel turns one-quarter of a full circle:

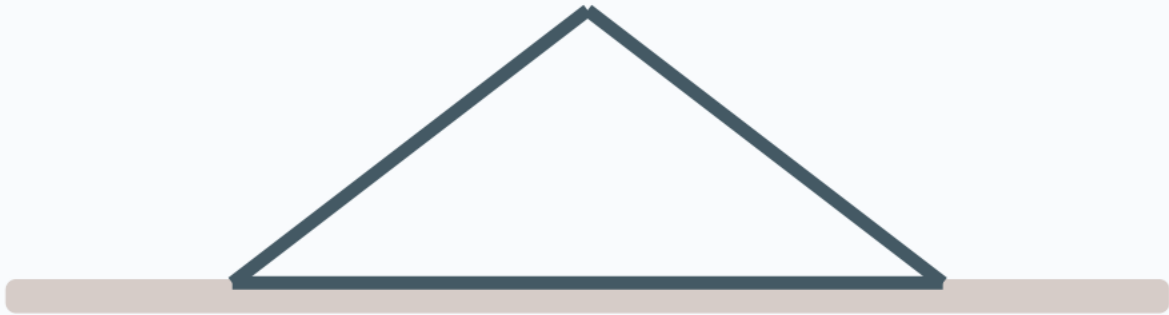
$$\frac{1}{4} \times 360^\circ = 90^\circ$$

2. BUILD IT — STEP BY STEP

Materials: cardboard/foam board • wooden sticks • small cups • axle • glue/tape • optional small motor

STEP 1

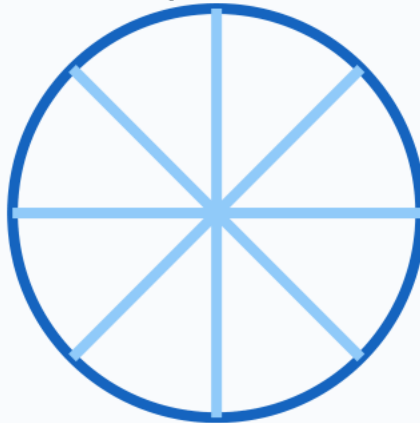
1. Make a strong triangular stand.



STEP 2

2. Cut a large circular wheel and add spokes.

Mark the centre clearly.

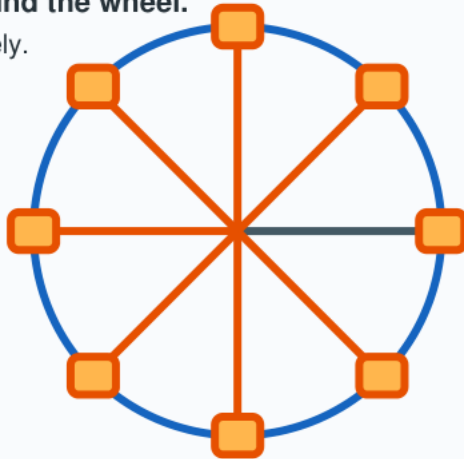


3. ADD THE CABINS & MAKE IT WORK

STEP 3

3. Add equal cabins around the wheel.

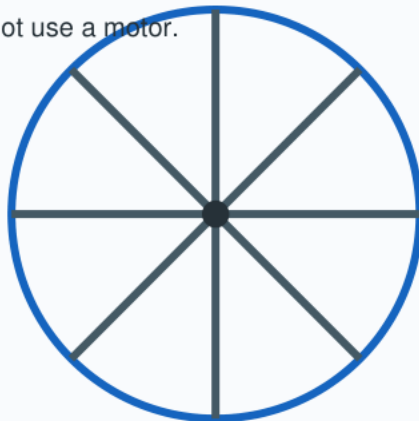
Keep the cabins hanging freely.



STEP 4

4. Attach the wheel to a small motor or axle.

Turn slowly by hand if you do not use a motor.

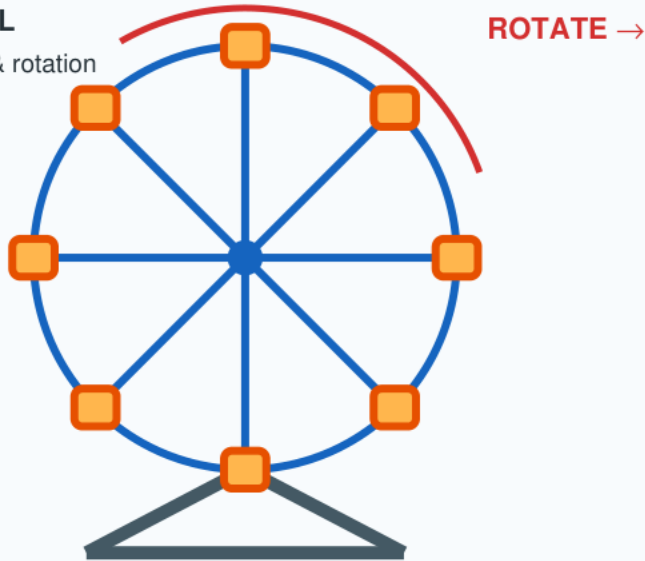


SAFETY: Keep the wheel light and rotate it slowly. Secure the stand before demonstrating.

4. PRESS / TURN → MATHS HAPPENS

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DEMONSTRATION

- ① Mark one cabin as the starting point.
- ② Turn the wheel by 45° .
- ③ Ask: Which cabin reaches the starting position?
- ④ Turn 90° , 180° and 360° and observe the positions.

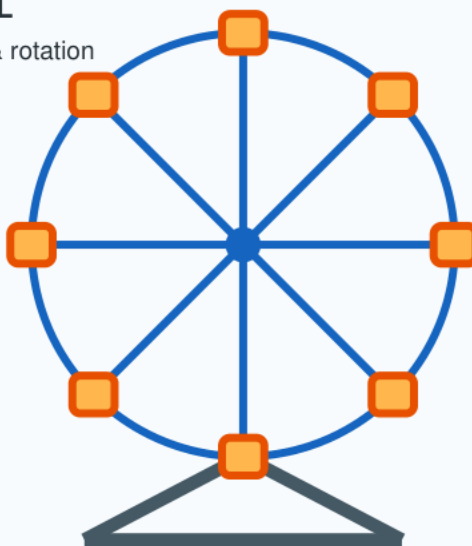
Challenge: If there are 12 cabins, what is the angle between two cabins?

Answer: $360^\circ \div 12 = 30^\circ$

5. REAL-LIFE CONNECTION

WORKING FERRIS WHEEL

Radius, circumference, angles & rotation



Each cabin completes one full turn = 360°

- **Ferris wheel:** Engineers use radius, circumference, angles, speed and rotation to design the ride.
- **Machines:** Rotating parts are designed using the same ideas about circles and angles.
- **Navigation & robotics:** Angles help describe turning and direction.

EXHIBITION LINE

“My model shows that a Ferris wheel is not just a ride — it is a moving circle. Every cabin has an angle, every turn has 360° , and the radius and circumference help us understand its motion.”