

Total Estimated Time of Steps 1 & 2 - ⌚ 2 mins
Resources Needed - AR app

STEP - 1

TEACHER ACTIVITY

- A. Open AR app
- B. Show image of any one polyhedron to students -
 - i) Cube or,
 - ii) Triangular Pyramid or,
 - iii) Triangular prism

STUDENT ACTIVITY

Watches the polyhedron shape

Suggestion:

It is recommended to start activity with a shape, students are familiar with and progressively move to complex shapes i.e. Cube -> Pyramid -> Prism

STEP - 2

Resources Needed - AR app, Notebook, Board

TEACHER ACTIVITY

Pose Think phase question to students.

Think phase:

- a) Individually, draw the given table in your notebook
- b) Predict the number of vertices (V), edges (E), faces (F) of the polyhedron shown
- c) Fill up the table with your prediction

STUDENT ACTIVITY

- a) Notes their V,E,F prediction values in the table in their notebook

Suggestion:

a) Draw a table on the board with the following column headers -

Name of polyhedron	Vertices (V)	Edges (E)	Faces (F)

b) If it is continuation of previous activity, ask students to add 2 more rows to the previous table.

STEP - 3

Total Estimated Time of Step 3 -  3 mins
Resources Needed - AR app, Projector, Notebook

TEACHER ACTIVITY

- A. Now, ask students to pair in small groups (upto 3 students per group)
- B. **Pair phase (pair):** a) Observe the polyhedron yourself & verify your count of the number of F and V of the given polyhedron
- C) Calculate the number of edges (E) using Euler's rule & write in the table

STUDENT ACTIVITY

- a) Watches the polyhedron model from different angles as the teacher rotates slowly.
[NOTE: This can be student themselves in a lab/tech-enabled classroom] and sees the V,E,F as they change color and get counted.
- b) Compares the final counter reading from AR with their prediction table in the notebook. Underlines their mistakes and Notes correct answers in the table.
- c) Calculate edges by using Euler's rule and fill up the table.

Suggestion:

- a) *If your classroom is not tech-enabled, either interact with the AR app yourself or call a pair of students to interact. The interaction can be projected on screen. You can also use it in the lab.*
- b) *Scan the marker for the polyhedron you have chosen. The 3D image will popup on-screen.*
- c) *Rotate the polyhedron slowly with fingers or by rotating the marker.*
- d) *Select the Vertices (V) checkbox in the app though you may also select the E & F checkbox. But it is preferable to start with vertices as they are the building blocks of the other 2 parameters - E & F.*
- e) *Now tap on all the vertices, one by one. As you tap the vertice, it will change color and a count of vertices tapped will be shown on the screen. Draw students attention to color change and the counter.*
- f) *If any vertex is missed from counting at the end, then it will be dispalyed in red. Do miss counting 1 vertex and ask students : Have we finished counting all the vertices?*
- g) *Repeat the same steps, c to f for F.*

Total Estimated Time of Step 4 - ⌚ 5 mins

STEP - 4

Resources Needed - AR app, Projector, Notebook

TEACHER ACTIVITY

Verify(whole class activity) :

- a) Ask students to share their solution for number of edges (E)
- b) Gives final feedback by demonstrating the counting of the no. of edges using the AR app.

STUDENT ACTIVITY

- a) Shares their solution for number of edges
- b) Watches the teacher feedback using AR app, tracks the counter for edges and self-evaluates their answer

Total Estimated Time of Step 5 - ⌚ 10 mins

STEP - 5

Resources Needed - AR app, Projector, Notebook

TEACHER ACTIVITY

(optional) Repeat Steps 1 - 4 for any other polyhedron

STUDENT ACTIVITY

(optional) Repeat Steps 1 - 4 for any other polyhedron