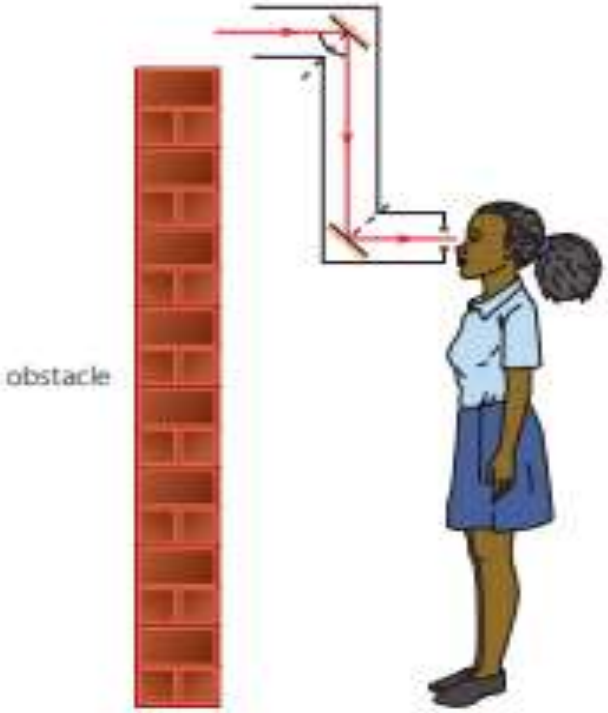
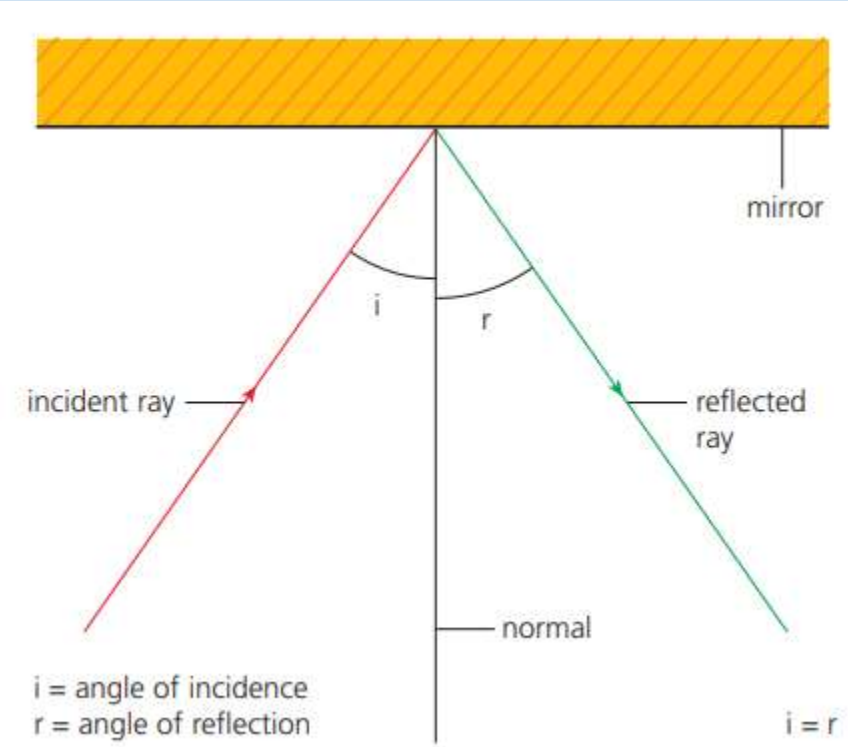
The law of reflection

Periscope

https://youtu.be/HbiLfA14Hpk?si=w5XNL8syGZ47Irc9 -





Statement - The law of reflection and periscope

Learning Objective:

1. State the law of reflection
2. Demonstrate the law of reflection
3. Apply the law of reflection to real life

Key words:
Normal
Incident ray
Reflected ray
Angle of incidence
Angle of reflection
Law of reflection
Mirror

Starter

1.How do we see things

2. Draw a simple ray diagram for the given scenario
The rays coming from the sun falls on small plant and reflected

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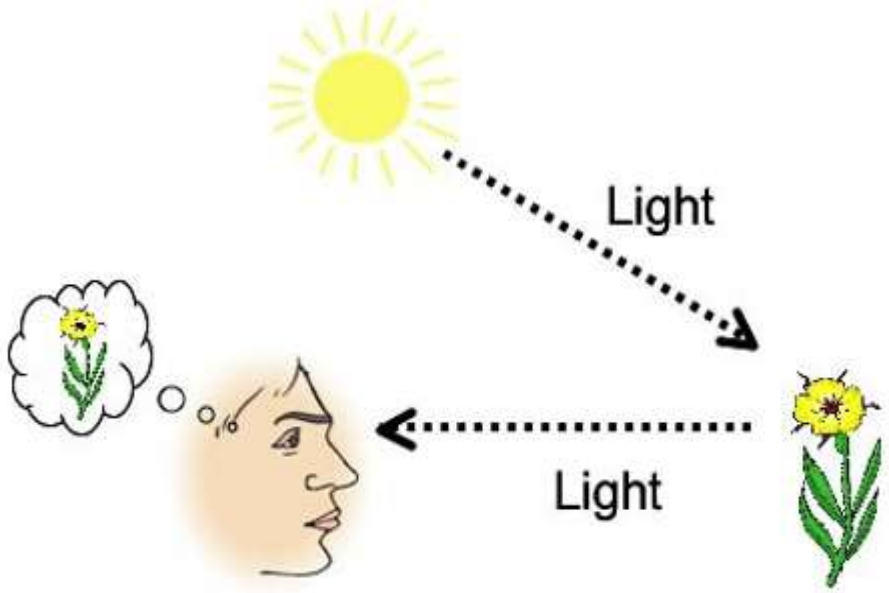
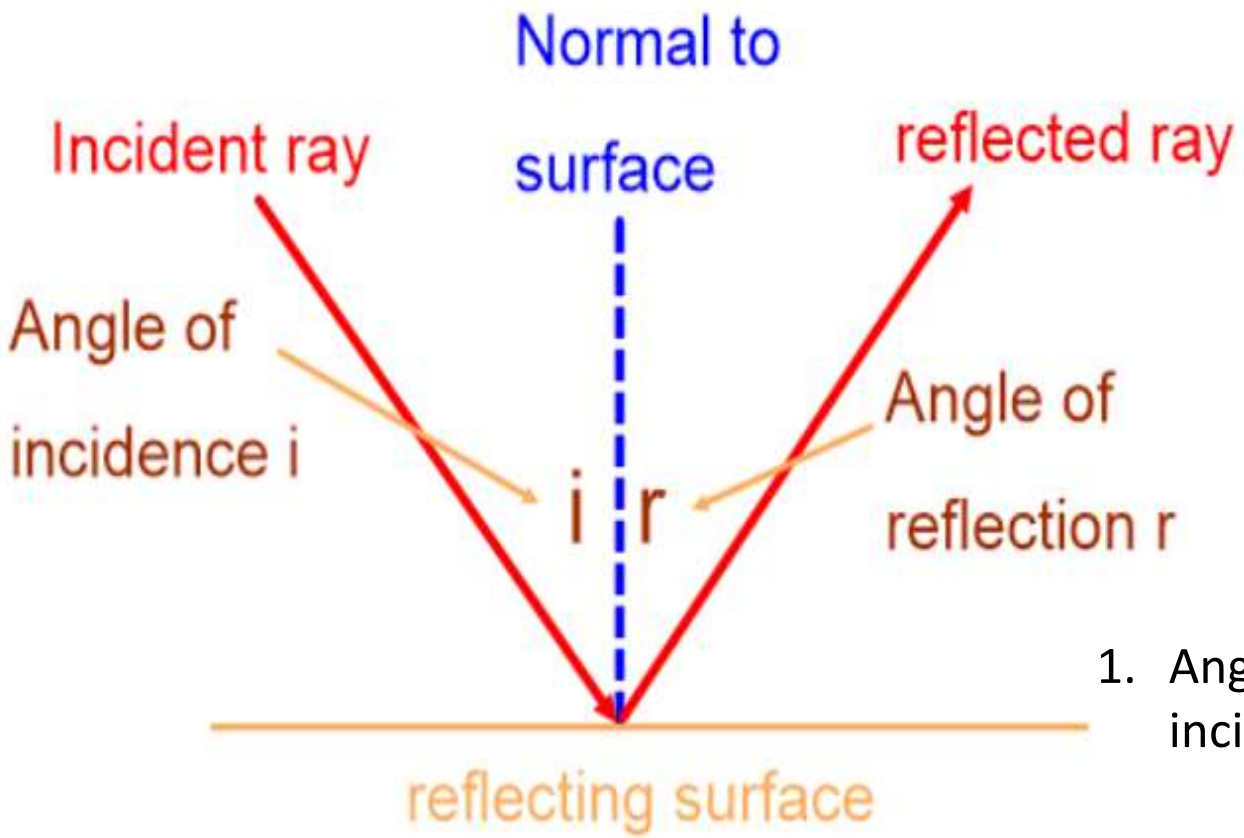


Law of Reflection



Note that the relevant **angles** are always **measured from** the **normal** to the ray.

Angle of incidence	=	Angle of reflection

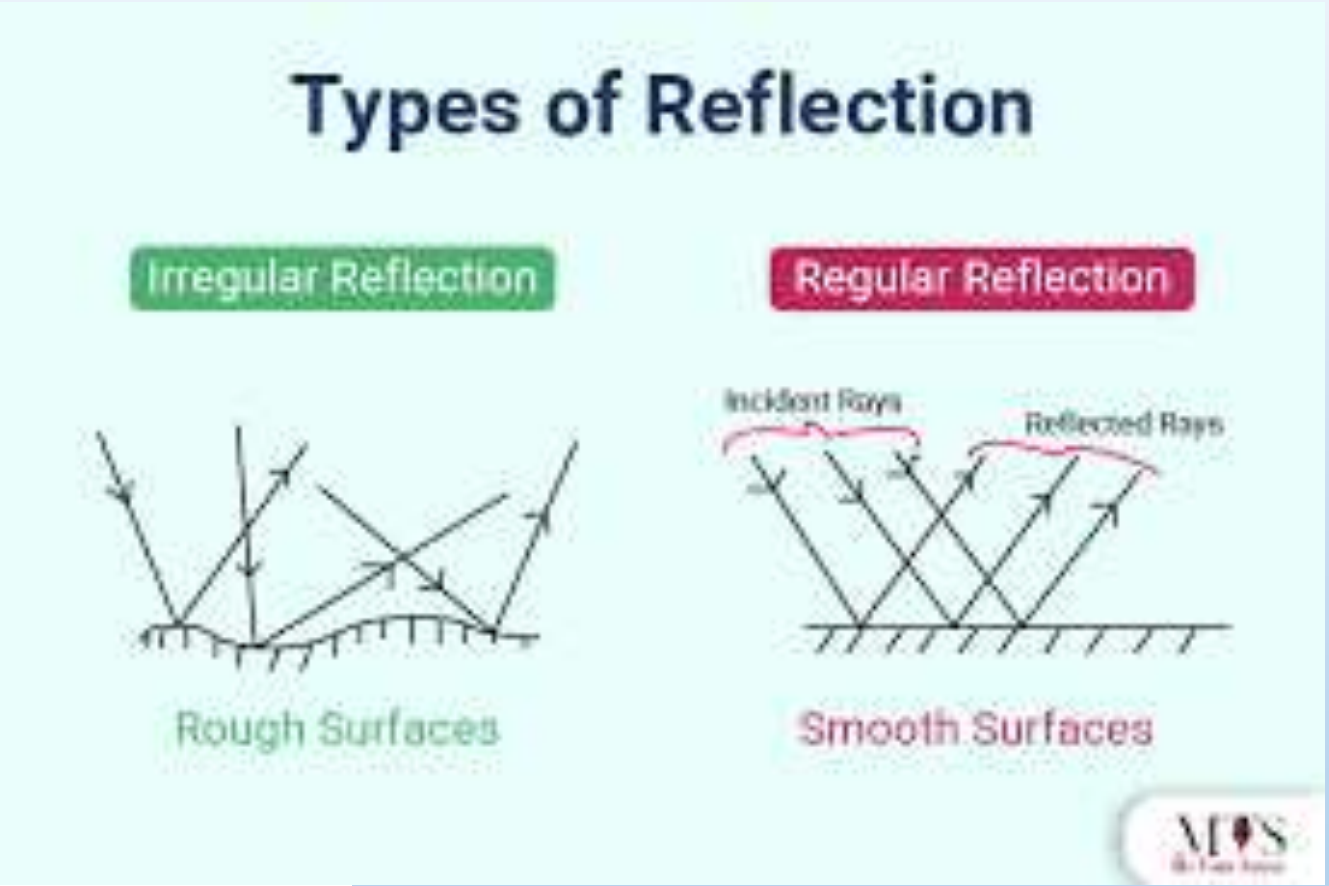
1. Angle between normal and incident ray is angle of incidence

2. Angle between normal and reflected ray is angle of reflection

https://simpop.org/reflection/reflection.htm

The normal is an imaginary line which is perpendicular to the surface at a particular point. It is independent of the ray at that point. We choose to make measurements of the rays using the normal as a position of reference.

Types of Reflection



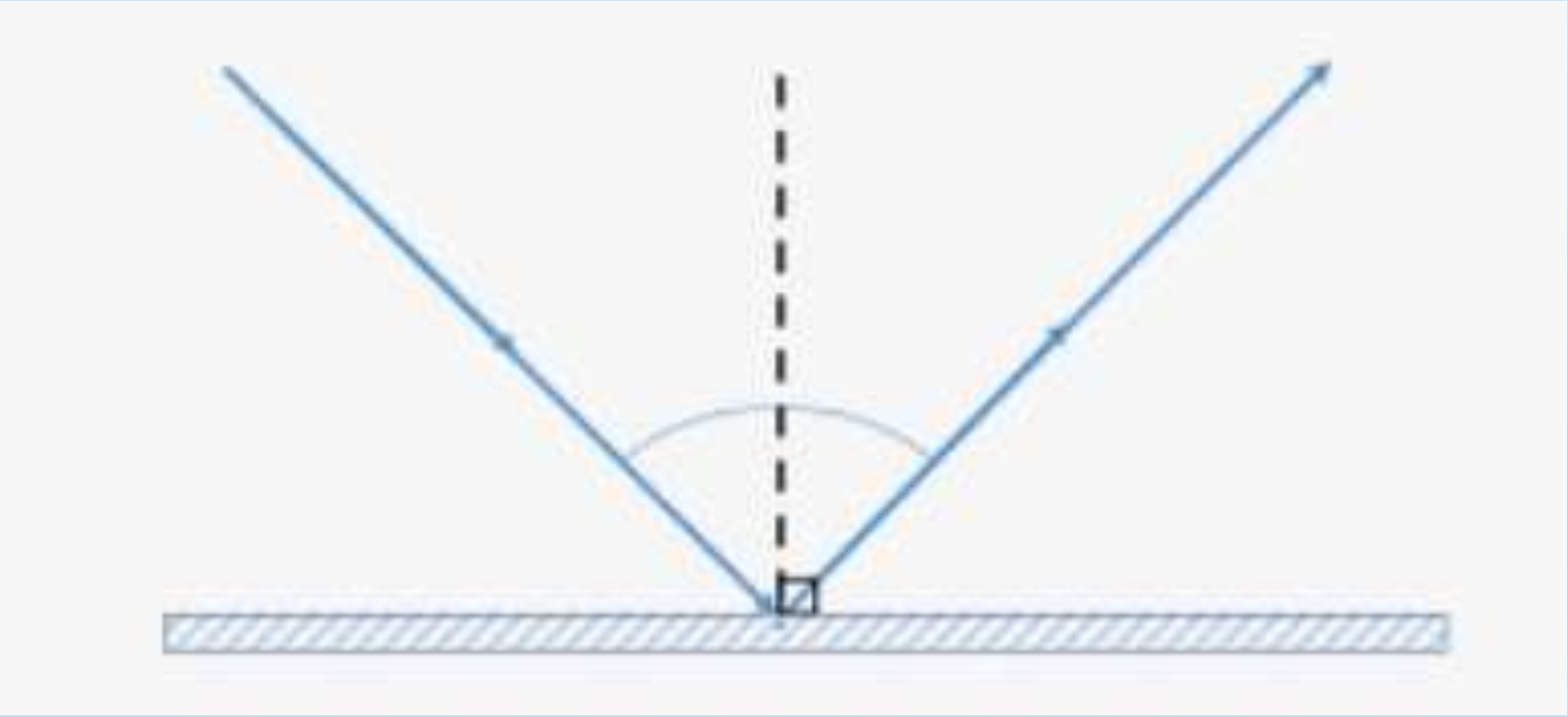
2.**Compare and Explain**

Question:
Why does a **smooth mirror** produce a clear image but a **rough wall** does not, even though both reflect light?

HPL Mapping:
•**ACP:** *Linking* – Connecting reflection laws to surface properties
•**VAA:** *Thoughtful* – Considering multiple factors

Activity

- **ACP:** Reasoning – Justifying predictions with evidence
- **VAA:** Accurate – Valuing precision in scientific work

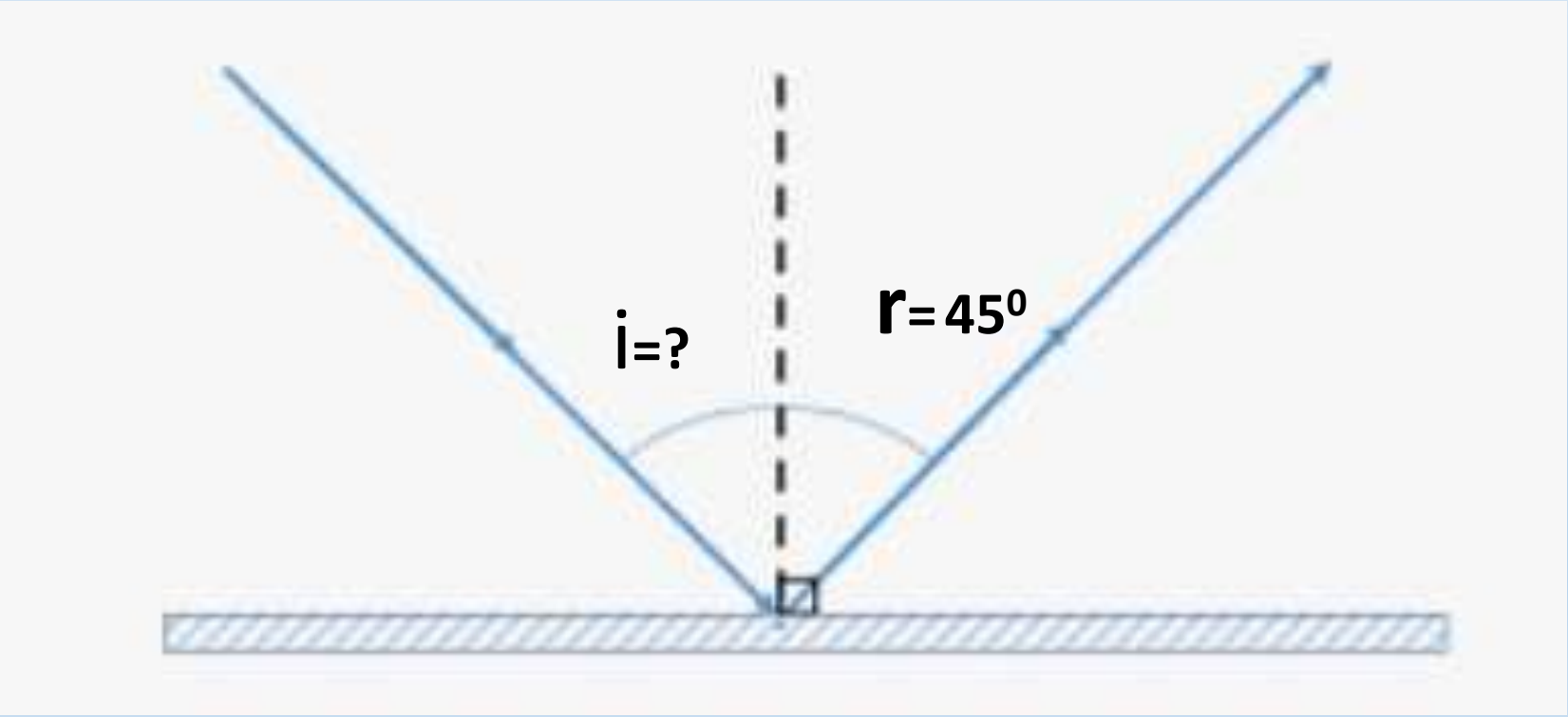


Complete the visual with appropriate labelling

1. Incident ray
2. Reflected ray
3. Normal
4. Angle of incidence(i)
5. Angle of Reflection(r)

Activity

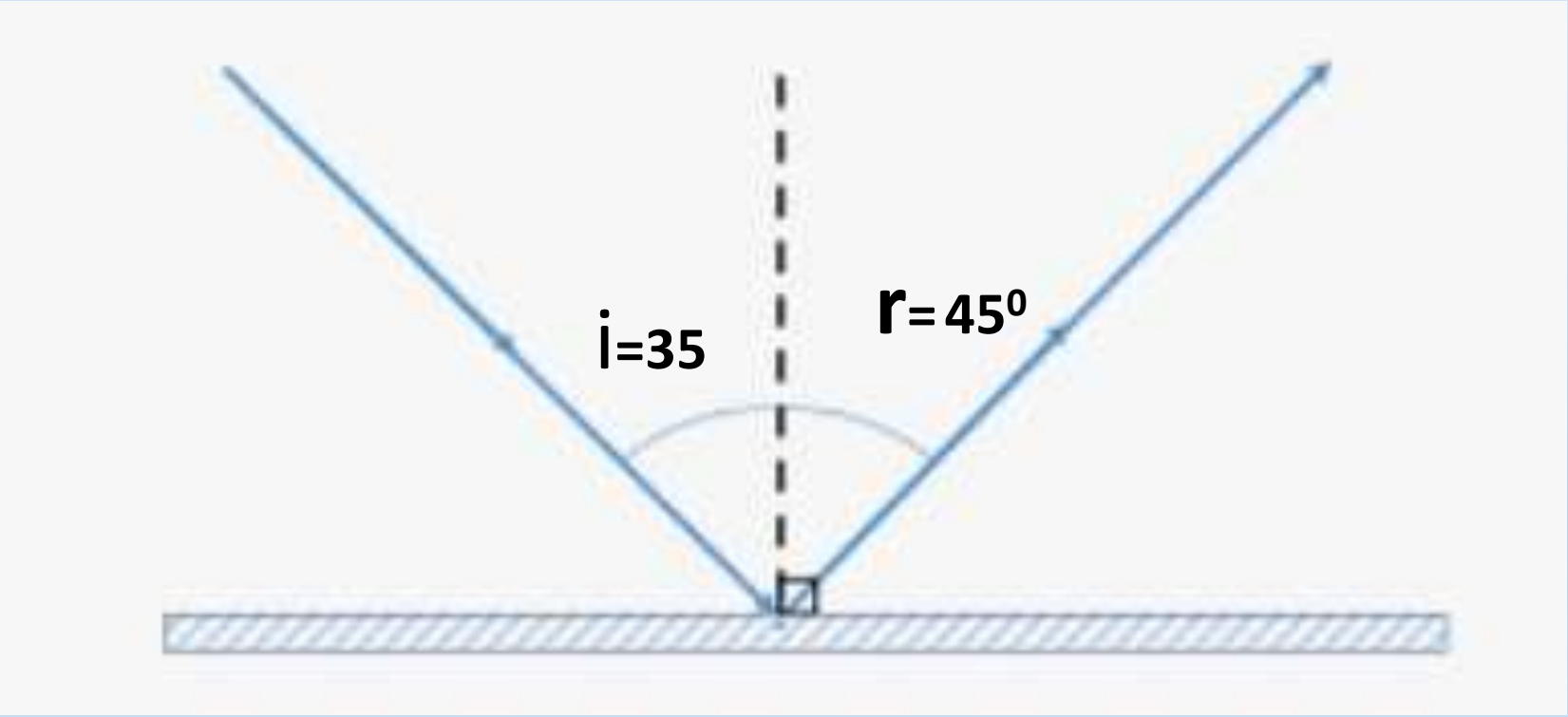
- **ACP:** *Reasoning* – Justifying predictions with evidence
- **VAA:** *Accurate* – Valuing precision in scientific work



Identify the angle of incidence in the diagram

Activity

- **ACP:** *Reasoning* – Justifying predictions with evidence
- **VAA:** *Accurate* – Valuing precision in scientific work



Is it correct diagram? Justify your answer

Activity

1.Predict and Justify

Question:
If the angle of incidence is **35°**, predict the angle of reflection.
What would happen if the normal line was drawn incorrectly?

HPL Mapping:

•**ACP:** *Reasoning* – Justifying predictions with evidence
•**VAA:** *Accurate* – Valuing precision in scientific work

Activity

Draw a law of reflection diagram with Incident ray, Normal , Reflected ray, i=35 degree(angle of incidence) and angle of reflection r=35.

UAE IDENTITY - **Application to Real Life**

Question:

Why do UAE PUBLIC drivers use **rear-view mirrors** that are carefully positioned instead of placing them at random angles?

HPL Mapping:

- **ACP:** *Applying* – Using scientific laws in real contexts
- **VAA:** *Responsible* – Understanding safety implications

Plenary

Complete the following with appropriate keywords

The angle of incidence = ……

……. are used in periscope

The angle between normal and incident ray is called ……

The angle between normal and reflected ray is called ……

Question:

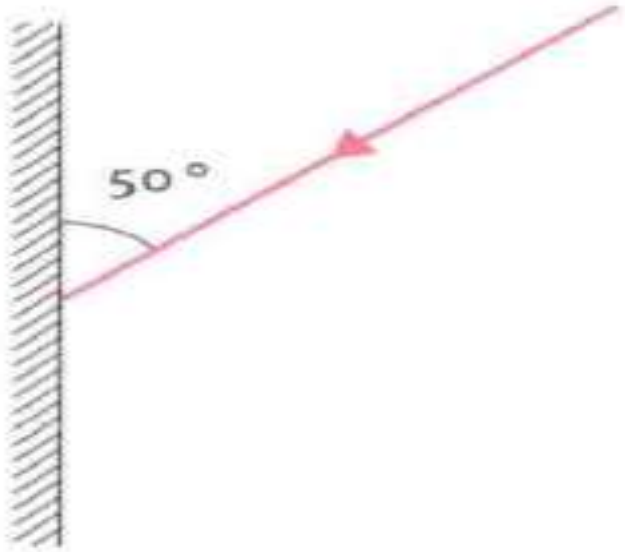
A student says, “If I change the angle of the mirror, the angle of reflection will stay the same.” Do you agree? Explain your answer using the laws of reflection.

HPL Mapping:

- **ACP:** *Analyzing* – Identifying relationships between angles
- **VAA:** *Open-minded* – Willingness to challenge incorrect ideas

AFL

A student drew this diagram to show how a ray of light is reflected by a flat mirror.



Make a copy of the diagram.

a On your copy of the diagram draw the reflected ray. Label the mirror, the incident ray and the reflected ray.

b Draw the normal to the surface of the mirror at the point where the ray is reflected. Label the normal.

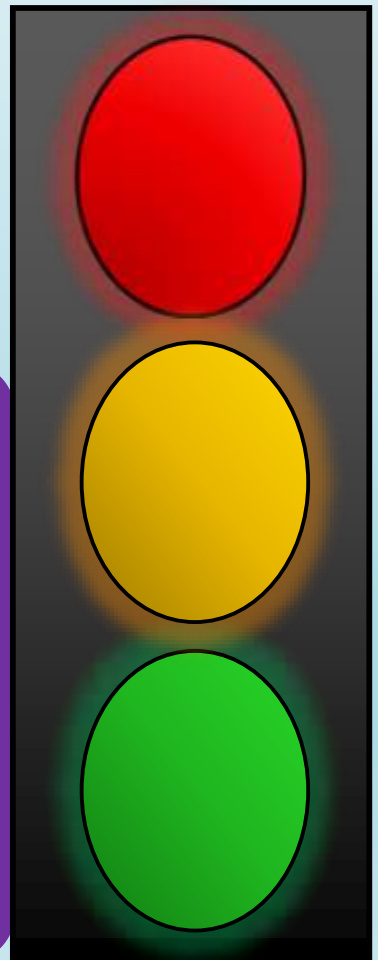
c Mark the angle of incidence and the angle of reflection. Label them **I** and **R**.

Success Criteria

Exit Ticket

1. **I can s**tate the law of reflection

2. I can understand the function of periscope
- – use of law of reflection



For each of the learning objectives, rate your progress towards completing them using Red, Amber or Green.

- If you are green in every area then what has helped you / what have you done to make you successful?

- If you are Amber or Red what do you need to know, do, or be helped with, in order to make you green?