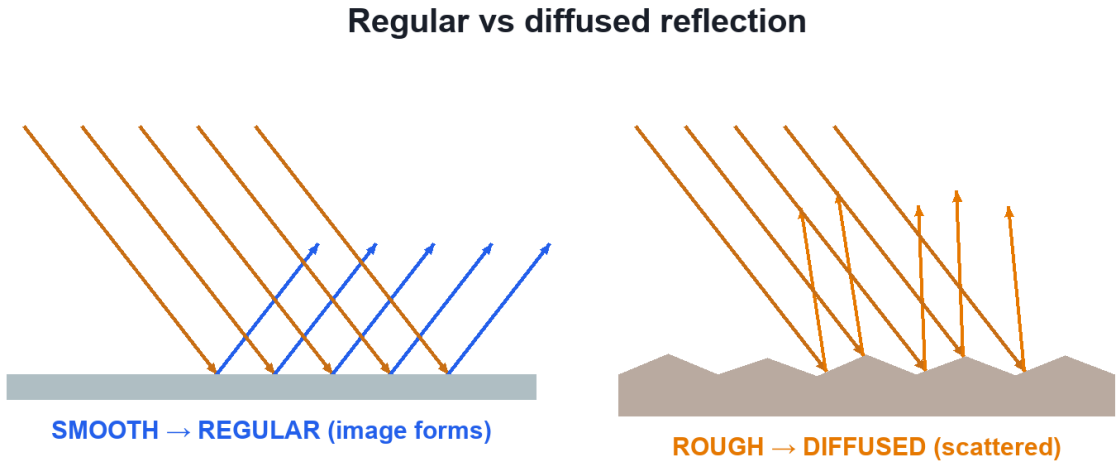
Regular vs Diffused Reflection

Class 10 Physics · Chapter: Light – Reflection and Refraction
🎬 **Video explanation (PrayogX reel):** https://www.instagram.com/reel/DfGpUlADCsD/

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1. The puzzle

A mirror and a white wall both reflect light, but only the mirror shows your face. The difference lies in the surface.



Each ray still obeys i = r at its own tiny surface.

Feature	Regular reflection	Diffused reflection
Surface	Smooth, polished (mirror, still water)	Rough (paper, wall, cloth)
Parallel incident rays	Reflect parallel	Reflect in many directions
Image	Forms	Does not form
Laws of reflection	Obeyed	Obeyed at every tiny part (normals point different ways)

2. Why diffused reflection is useful

- We can read a book or see a wall from any direction because light is scattered towards everyone.
- A wet road at night glares like a mirror: water fills the tiny bumps, making the surface smoother, so reflection becomes more regular.

3. Key takeaways

- Smooth surface → regular reflection → image.
- Rough surface → diffused reflection → no image, but visible from all sides.
- The laws of reflection hold in both.

Practice questions (CBSE style)

1. Distinguish between regular and diffused reflection. (2 marks)
2. Does diffused reflection violate the laws of reflection? Explain. (2 marks)
3. Why can we read a book from any angle? (1 mark)
4. Why does a wet road appear shiny at night? (2 marks)
5. Give one example each of regular and diffused reflection from daily life. (1 mark)

Answer key with worked solutions

1. Regular: from a smooth surface, parallel rays stay parallel and an image forms. Diffused: from a rough surface, rays scatter and no image forms.
2. No. Each ray obeys i = r at the tiny part of the surface it hits; the normals point in different directions, so the reflected rays scatter.
3. Its rough surface reflects light diffusely in all directions, so some reaches our eyes from any angle.
4. Water fills the irregularities of the road, making the surface smoother, so it reflects more regularly (like a mirror) and causes glare.
5. Regular: your image in a bathroom mirror (or still water). Diffused: seeing the page of a book or a painted wall.