

Forces in Motion: Nova's Scientific Sketchbook

Learning objective: To identify, draw, and label the forces of air resistance, friction, and gravity acting upon a moving object.

Use your scientific knowledge to illustrate how forces affect a moving object. Ensure your labels are clear and include arrows to show the direction of the forces.

Draw: Draw a side-view scene of a paper glider in mid-air. Use a clear, scientific style with thin lines. Include the glider tilted downwards. Draw arrows to show: a long blue arrow pointing straight down for Gravity, a shorter red arrow pointing backwards against the motion for Air Resistance, and a forward-facing arrow for the initial Applied Force. Add a small landscape below to show the landing zone.



Label words: Gravity · Air resistance · Friction · Applied force · Direction of motion

Steps:

1. Explain why the paper glider eventually slows down and lands. Which forces are responsible for this?
2. Compare and contrast how friction acts on a glider in the air versus a toy car rolling across a carpet.
3. Justify your answer: If Nova flew her glider on the Moon, how might the force of gravity change its flight path compared to on Earth?
4. Label the direction of 'Air Resistance' on your drawing using a red arrow.

5. What might happen if the glider had a much larger surface area? Explain your scientific reasoning.
6. Label the force of 'Gravity' on your drawing using a blue arrow.