Forces In Action

<u>Learning Objective:</u>

To identify and explain the effects of air resistance.

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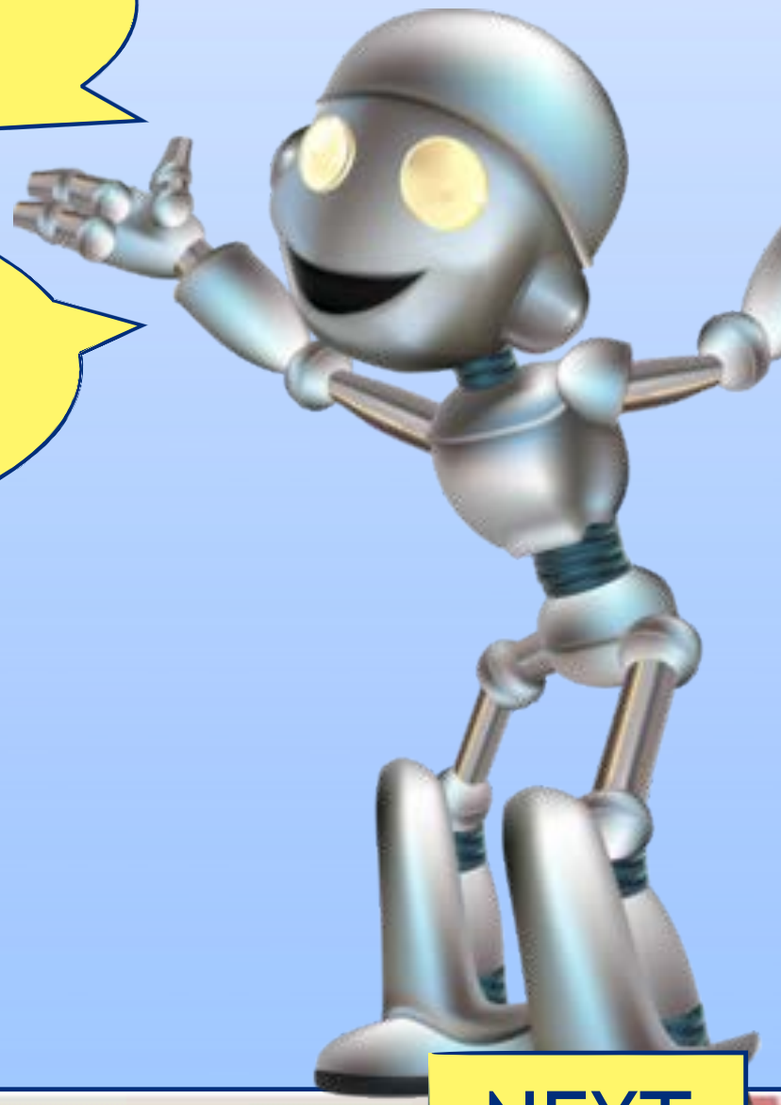
Have you ever walked outside on a really windy day?

What did it feel like?

How easy was it to walk?



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We don’t always think of air as being anything at all. Usually we don’t notice the air around us but air can act as a force against moving objects in the same way that water does.

Air resistance is a force that occurs when air pushes against a moving object and causes it to slow down.

Let’s look at some examples of **air resistance** in action...

BACK

NEXT

If you have ever been on a rollercoaster you will have felt air resistance as the wind in your face. The air resistance is slowing the rollercoaster down (although it may not feel like that!).

BACK

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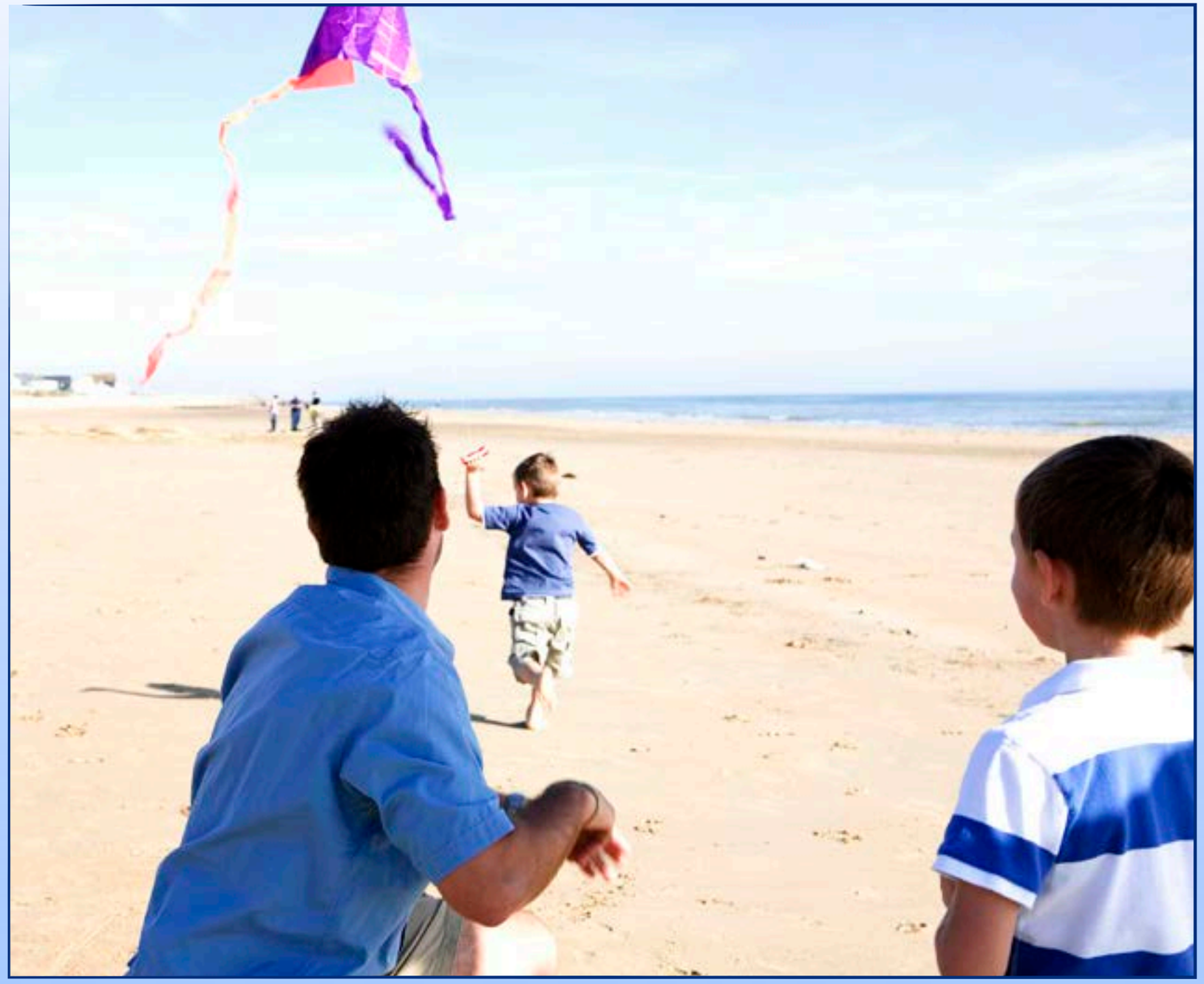
Kites need air resistance to work. Without air resistance, gravity would pull the kite straight to the ground but air resistance keeps the kite up in the air.



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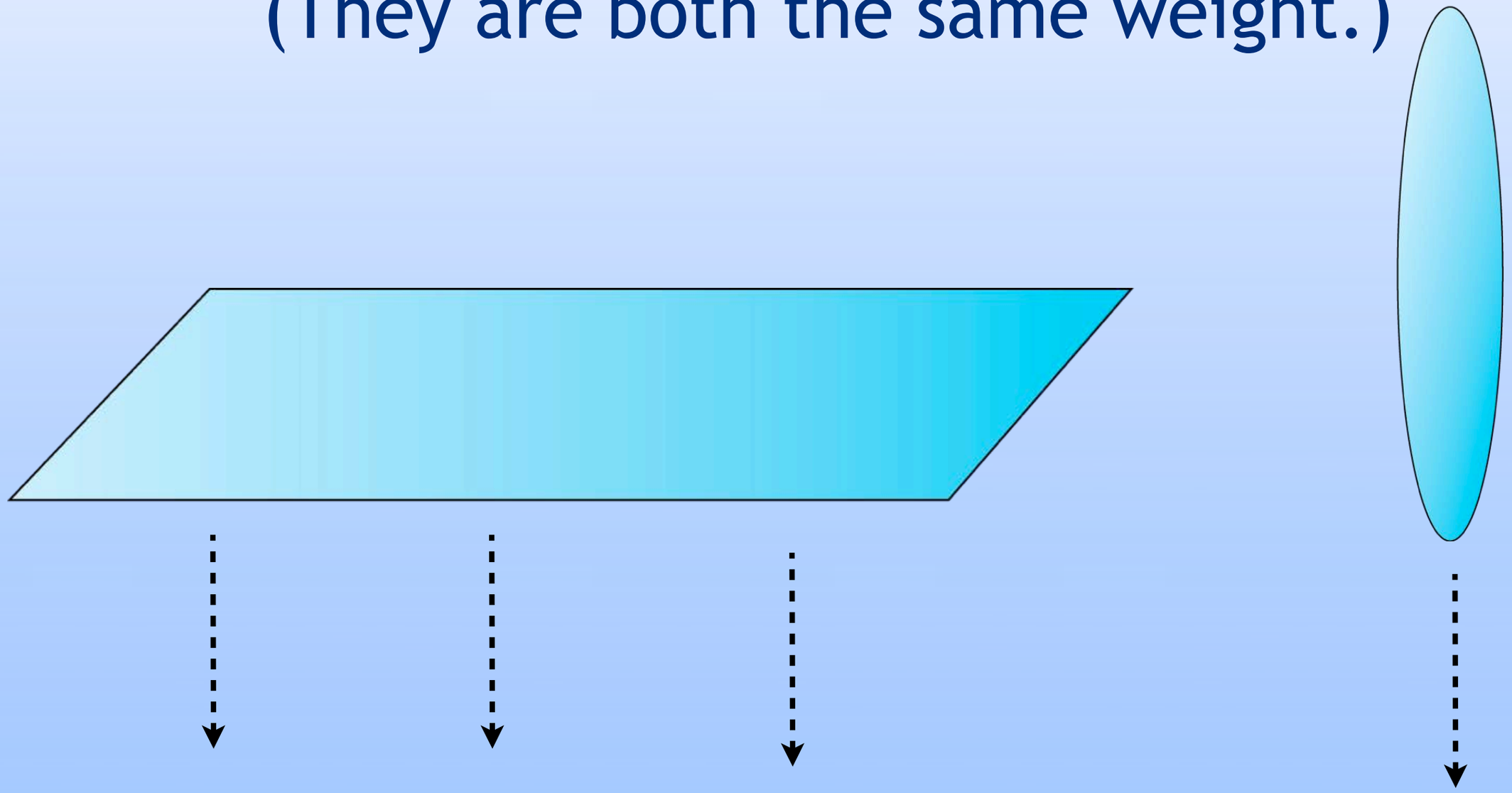
The surface area of an object affects how fast it will fall to the ground. Which of these objects do you think will fall to the ground more quickly and why? (They are both the same weight.)



Sky divers use air resistance to help them land on the ground safely. If you jumped out of a plane without a parachute you would land with a splat but air resistance acts against the parachute and slows it down so the sky diver can land in one piece.

BACK

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Which of these statements do you agree with? Why? Which is most scientific? Can you improve any of the statements?

"Parachutists fall safely because the air slows them down."

"Everything falls to the ground equally quickly depending on the wind."

"Air holds things up so they float."

"It's because of air resistance."

"The parachute traps a lot of air so there is a big force of air pushing up against gravity which keeps the parachutist from falling quickly."

BACK

NEXT