

Back to School 2: *The Paper Plane*

Listening



Name: _____

Listen and answer the questions.



1. Why is physics important?
 - a. It is the most exciting part of science.
 - b. It helps you understand the world around you.
 - c. It teaches you how to use the different tools you have at home.
2. Can physics explain how electricity works?
 - a. yes
 - b. no
 - c. The speaker doesn't say.
3. What can you study to understand how heat is transferred?
 - a. motion
 - b. electricity
 - c. thermodynamics
4. When you throw a ball in the air, what makes it fall back to the ground?
 - a. The force of the ball.
 - b. The force of Earth's gravity.
 - c. The force of your arm.



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Reading

Name: _____

Read and answer the questions.

Why Do Paper Planes Fly?

You know that a flat piece of paper doesn't fly through the air very well. But when you fold it into the shape of an airplane, with a pointed nose and wide, triangular wings, you can make it fly across a room—or even farther.

The science of aerodynamics explains why this happens. The word *aerodynamics* comes from *aero*, meaning “air,” and *dynamics*, meaning “movements.” It is about the movement of objects through the air.

Air pushes on all objects, which stops them from moving easily. The pointed nose of a paper plane helps it cut through this resistance so it can move farther through the air. The large wings of a paper plane also help keep it in the air. When you throw a paper airplane, the plane moves forward. Air below the wings pushes upward. The harder you throw, the longer your paper plane may stay in the air.



1. What is aerodynamics?
 - a. The study of Earth's air.
 - b. A way of making paper planes.
 - c. The study of how things move through the air.
2. What helps a paper plane cut through the air?
 - a. The way you throw it.
 - b. The pointed nose.
 - c. The wide wings.
3. How do the wings help a paper plane stay up?
 - a. They push on the air.
 - b. Gravity pushes up on them.
 - c. The air underneath pushes up.
4. What happens if you throw a plane with a lot of force?
 - a. It will stay up longer.
 - b. It will fall to the ground.
 - c. It will travel slowly.

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Writing

Name: _____

Read the e-mail. Then write your own e-mail to your teacher. Explain why you haven't done your homework. Include all the elements of an e-mail.



To: Mr. Tyson <terrific_tyson@bopmail.com>

From: Janice <janice@bopmail.com>

Subject: Physics homework

Dear Mr. Tyson,

I'm sorry, but I haven't done my physics homework yet. First, I left my book at school. When I went back to get it, the doors were locked! Then, I borrowed my friend Alex's book. But my dog thought it was a toy. He chewed the pages and ate most of the physics problems! There was one physics problem left in the book, but then my pen ran out of ink, so I couldn't do that either. I'll do my homework very soon!

Sincerely,

Janice

To: _____

From: _____

Subject: _____



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Speaking

Name: _____

This girl has made some paper planes.
Ask her three questions about them.



Now do a role-play. Ask a classmate your questions. He/She answers.

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Teacher's Guide

Listening Answer Key

1. b
2. a
3. c
4. b

Audio Script

PHYSICS TEACHER: Physics tells you all about the physical world around you. Do you want to know how a light bulb works? Physics can help you understand how small particles move to create electricity in your home.

Do you want to know how heat is transferred to your food as it bakes in an oven? You can study thermodynamics, or the physics of heat.

Physics can also help to explain how magnets stick to your refrigerator or how a plane flies in the sky.

One of the most exciting parts of physics is the study of motion. For example, when you throw a ball, why does it fly through the air and then fall to the ground? Your arm exerts a force on the ball, moving it in one direction. But the force of Earth's gravity pulls it back toward the ground. If you study physics, you can understand these forces and predict how objects move.

Reading Answer Key

1. c
2. b
3. c
4. a

Writing Answer Key

E-mails will vary but should include "to" and "from" e-mail addresses, a subject, a greeting, a body, a closing, and a signature.

Speaking Answer Key

Example of correct questions:

- What are the planes made of?
- How long did it take (you) to make them?
- How far do they fly?
- How many planes did you make?
- Why did you make them so big?