Skydive into Forces

Name: _____

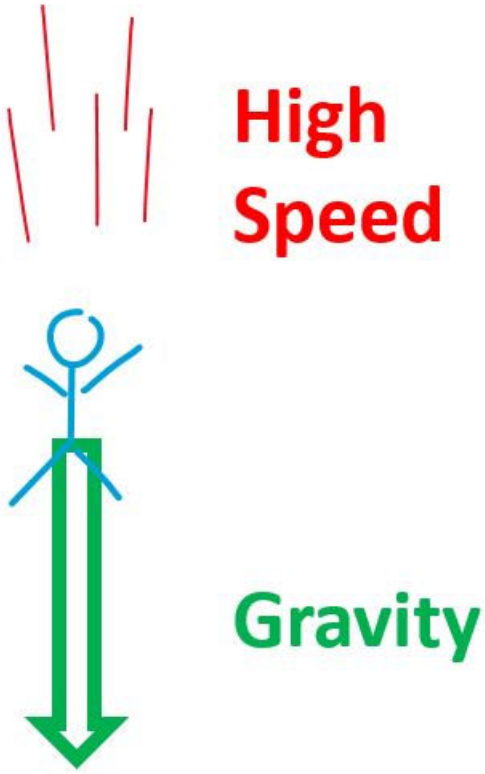
Date: _____

Student worksheet — Answer Key

Directions: Complete the steps below to prepare for the experiment.

1. Draw a falling skydiver.

   Note: there are many ways to answer to this question. This represents just one.

Falling without parachute	**Checklist:**
	☐ Draw the skydiver falling. ☐ Draw why the skydiver falls. (*Hint*: What causes the pull?) ☐ Draw how fast the skydiver moves.

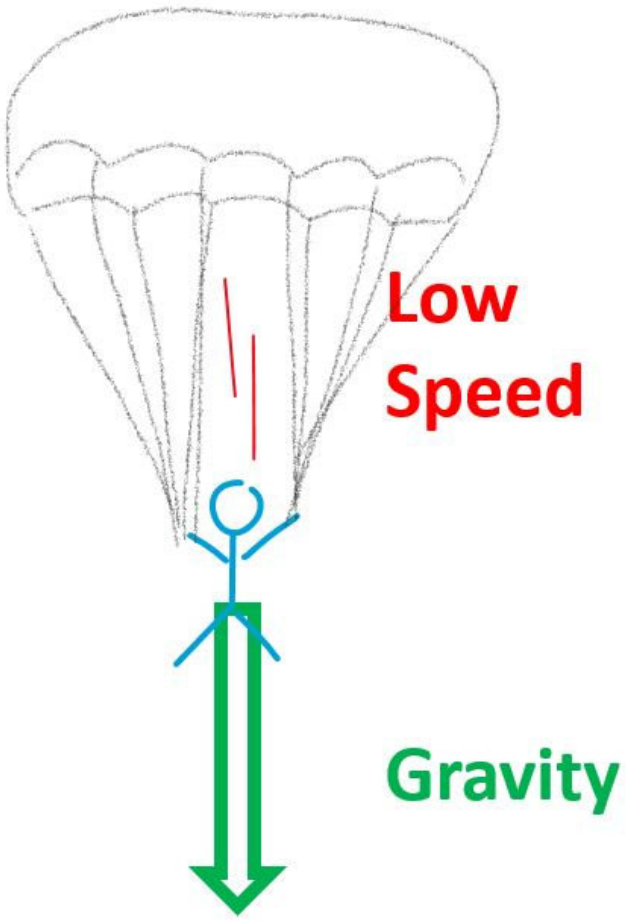
Skydive into Forces — Page 2

Name: _____

2. Draw and describe how and why you predict the parachute allows a skydiver to land softly.

   In the answer, look for an arrow pointing down representing gravity and lines representing speed. There are several good explanations. This shows only one.

Falling with parachute



Checklist:

- ☐ Draw the skydiver falling and the parachute.
- ☐ Draw why the skydiver falls. (*Hint*: What generates the pull?)
- ☐ Draw how fast the skydiver moves.

Briefly explain why you think a parachute allows for a softer landing.

A skydiver with a parachute falls slower. The slower you move when you hit the ground, the more softly you land.

Skydive into Forces — Page 3

Name: _____

Directions: Watch the video and create and test a model parachute.

3. Choose the shape and size of your canopy: a square with side length between 10 and 40 cm **OR** a circle with diameter between 10 and 40 cm.

   Our canopy is a _____ of _____
   (shape) (size)

4. Record if your figure lands soft, hard, or in-between (medium) by circling the correct word in Table 1.

   Table one lists the most probable test results. Occasionally, a parachute might not open during the fall, and the figure with parachute might land medium hard or hard.

Table 1: Data of how the figure lands.

	Trial 1	Trial 2	Trial 3	Trial 4
Drop with parachute	(Soft) Medium Hard	(Soft) Medium Hard	(Soft) Medium Hard	(Soft) Medium Hard
Drop without parachute	Soft Medium (Hard)	Soft Medium (Hard)	Soft Medium (Hard)	Soft Medium (Hard)

5. Can you see a pattern in your data? What can you conclude?

6. Now that you have done the experiment, use the next page to draw and describe how and why you think the parachute allows a skydiver to land softly. Has your explanation changed?

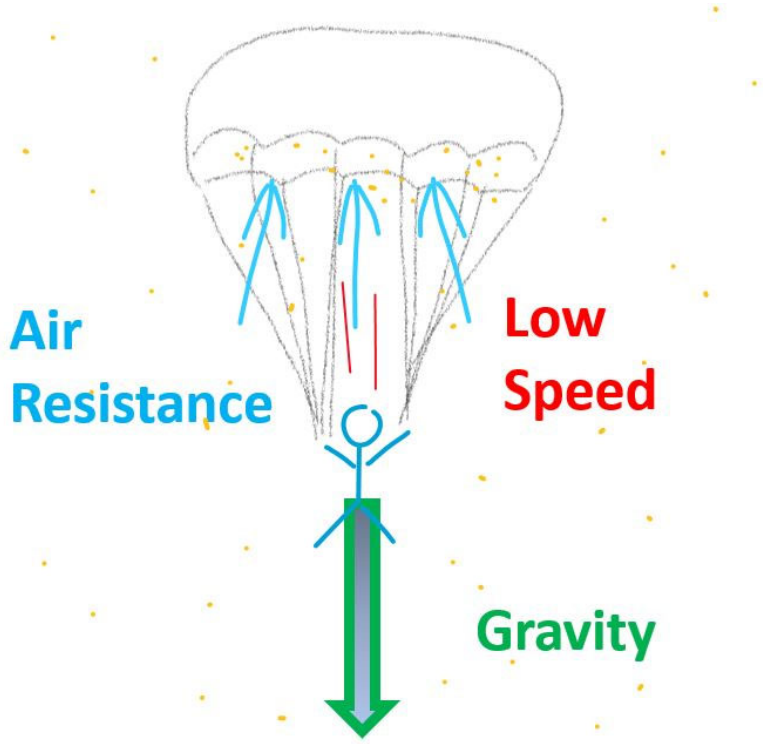
Skydive into Forces — Page 4

Name: _____

Directions: Complete the sections below about your experiment.

Look for an arrow pointing down representing gravity and lines representing speed in students' answers. This answer shows one way to represent what slows down the fall and one explanation. Other answers can be just as good.

Falling with parachute



Checklist:

- ☐ Draw the skydiver falling and the parachute.
- ☐ Draw why the skydiver falls.
- ☐ Draw how fast the skydiver moves.
- ☐ Draw what slows down the fall.

Briefly explain why you think a parachute slows a fall down and thus, allows for a safe landing.

The skydiver with no parachute falls fast because not much air pushes up on him/her. The skydiver with a parachute falls more slowly because lots of air pushes up on them, slowing them down.