

# STRESSED OUT?



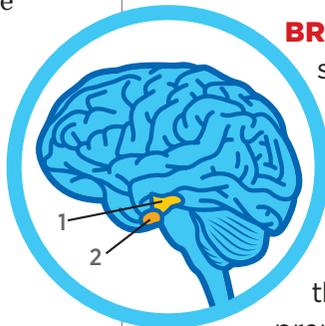
Learn how the body responds to stress—and healthy ways to cope

## Your Body Under Pressure

**T**hink of a time you were stressed. You may remember your heart racing, palms sweating, shoulders tensing up.

These reactions and feelings are part of the body's natural response to stress. Once the brain identifies a threat, the body releases a flood of hormones that prepare it for the challenge.

Known as “fight or flight,” the stress response helps us survive. But it is also activated by events that aren't life-threatening. This can include school and relationship pressures. It can even happen when you are over-connected to technology and social media. Some stress is helpful, like keeping you energized to study for a test. But constant stress can wear you down emotionally and physically, which can lead to serious health problems.



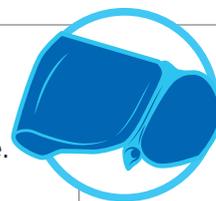
**BRAIN:** The body's stress response starts when the brain's hypothalamus (1) signals the pituitary gland (2). This gland then signals the release of the hormones that prepare the body to fight or escape.

**Fast Fact:**

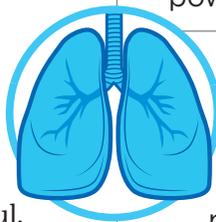
The body's main stress hormones are adrenaline, norepinephrine, and cortisol.



**HEART:** Heart rate and blood pressure increase. This helps blood quickly deliver oxygen to power muscles.



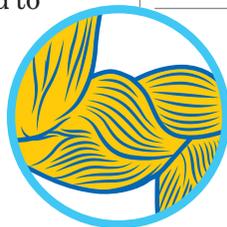
**LIVER:** The liver releases glucose (blood sugar) into the bloodstream. This powers cells in the body.



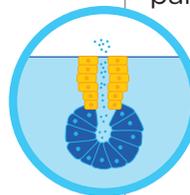
**LUNGS:** Breathing rate increases, sending more oxygen to power muscles.



**STOMACH/INTESTINES:** Food digestion slows and energy is redirected to other parts of the body.



**MUSCLES:** Muscles tense up to prepare the body for action.



**SWEAT GLANDS:** Stress-triggered sweat is different from sweat that cools the body. Researchers aren't sure why we sweat when stressed.

► **More Info:** For additional facts about health, visit [scholastic.com/headsup](http://scholastic.com/headsup) and [teens.drugabuse.gov](http://teens.drugabuse.gov).

# ⚠️ Chronic Stress

Ongoing, or chronic, stress does not allow the body's stress hormones to return to normal levels. This can lead to health problems. Chronic stress can:

- \* Increase the risk of getting sick because stress can weaken your immune system
- \* Cause sleep problems because of increased energy
- \* Lead to injuries or headaches from constant muscle tension
- \* Increase the risk of anxiety and depression
- \* Cause problems with learning and memory
- \* Increase the risk for heart disease, obesity, and diabetes

## Stress and Misusing Drugs: Not a Good Mix



Some people think drugs can help reduce stress. But drugs can actually make the body's stress response even stronger. Here are some examples:

- \* Stimulants increase heart rate, blood pressure, and feelings of anxiety. Stress also causes these effects. As a result, taking stimulants when stressed can make these symptoms worse.
- \* Alcohol may be calming at first. But frequent use can raise stress hormone levels. This increases irritability and anxiety.
- \* Both stress and drug use can make a person more impulsive and interfere with decision making. They can also change how the brain experiences pleasure. These effects increase the risk for drug use and for developing an addiction.

## Tips to Help You Cope



### MOVE YOUR BODY:

Exercise creates "good stress" and helps you cope with mental stress.



### MEDITATE:

Meditation and deep breathing can decrease blood pressure and improve mood.



### TAKE A TIME-OUT:

Stepping away from social media and texting can help you relax.



### DO ONE THING

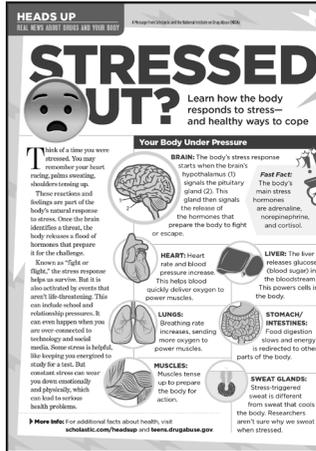
**AT A TIME:** If you feel overwhelmed, reduce multitasking.



**GET SUPPORT:** If you are stressed, ask for help from a trusted adult.

### HAS YOUR MIND EVER GONE BLANK ON A TEST?

The stress hormone norepinephrine may temporarily interfere with brain circuits used to recall memories. If this happens to you, pause and take a deep breath to relax. This can help slow the hormone surge. *You've got this.*



# STRESSED OUT?

Learn how the body responds to stress—and healthy ways to cope.

Stress is a part of life, but students may have difficulty coping and feel overwhelmed, which can increase the risk for drug use. The article “Stressed Out?” helps explain how the body’s stress response system works, as well as the health consequences of ongoing (chronic) stress. Students will learn how their bodies respond to stress and how they can manage under pressure.

## Critical-Thinking Questions

- 1) What is the fight-or-flight response? (*The fight-or-flight response is the body's natural stress response. It releases hormones that prepare the body for a challenge. It boosts energy in the body if a physical reaction is needed.*)
- 2) Why is the fight-or-flight response an important process in the body? (*It is important because fight or flight helps us survive.*)
- 3) How can stress be helpful to you in everyday situations? Give examples. (*Stress can increase energy and responsiveness. This can be helpful in giving you energy, such as when you need to study for a test. [Additional examples may apply, such as energy and/or focus to play sports, perform on a stage, or give a presentation. It can help to complete any task or challenge.]*)
- 4) How can pressures in everyday teen life lead to health problems? (*Constant stress from problems might lead to chronic stress. This means that the body's stress response system is not allowed to return to normal levels. This has many health risks including illness; sleep problems; headaches; mental health problems; problems with learning and memory; and heart disease, obesity, and diabetes. It can also increase the risk for drug use and for developing an addiction.*)

## Writing Prompts

- What are signs that a person is experiencing chronic stress?
- Explain why using drugs or alcohol when stressed does not help a person cope.
- Write about positive ways you have coped with stress or tips that you would like to try.

## Paired Reading/Writing Prompt

- “Stress and Drug Abuse: The Brain Connection,” <http://heads-up.scholastic.com/students/stress-and-drug-abuse>

**Writing Prompt:** Explain how situations in a person’s life that result in chronic (ongoing) stress might put him or her at risk for using drugs.

## Tiered Vocabulary Tools:

Visit [scholastic.com/headsup/stress-vocabulary-tools](http://scholastic.com/headsup/stress-vocabulary-tools) for vocabulary printables that support the student article and lesson.

## Student Work Sheet: “Stress Test”

The skills sheet on the reverse side has students critically analyze what they have learned in the article.

**Answer Key:**

**Part 1:** 1. c; 2. e; 3. b; 4. a; 5. d

**Part 2:** Answers will vary but should include specific evidence from the work sheet as well as the student article about specific body reactions to stress and the reasons for them.

**Part 3:** Answers will vary.

## Additional Student Resource:

“Nine Tips to Help You Cope With Stress,” [teens.drugabuse.gov/blog/post/nine-tips-help-you-cope-stress](http://teens.drugabuse.gov/blog/post/nine-tips-help-you-cope-stress)

## Research Topic:

Read the blog entry: “Teens and ‘Nomophobia’: Cell Phone Separation Anxiety” at [teens.drugabuse.gov/blog/post/teens-and-nomophobia-cell-phone-separation-anxiety](http://teens.drugabuse.gov/blog/post/teens-and-nomophobia-cell-phone-separation-anxiety). Conduct your own cell phone research. How often do you check your phone, and what is your stress level when you don’t have phone access?

[Continue to work sheet on next page.]

## SUBJECT

- Science Literacy
- English Language Arts
- Health/Life Skills

## COMMON CORE STATE STANDARDS

RST.6-8.1 and RST.9-10.1

- Cite specific textual evidence to support analysis of science and technical texts.

## NEXT GENERATION SCIENCE STANDARDS

MS-LS1-3 and HS-LS1-2

- From Molecules to Organisms: Structures and Processes

## NATIONAL SCIENCE EDUCATION STANDARDS

- Structure and Function in Living Things
- Personal and Community Health

## Additional Teaching Resources:

- [heads-up.scholastic.com/teachers](http://heads-up.scholastic.com/teachers)
- [teens.drugabuse.gov](http://teens.drugabuse.gov)

# STRESS TEST

## PART 1

### MATCH THE RESPONSE

When you feel under stress, your body's stress response system responds to the situation. Match each body organ below with how it responds to stress.



**1. Heart**

**a.** Tense to prepare the body for action.



**2. Brain**

**b.** Releases glucose (blood sugar) into the bloodstream to power cells.



**3. Liver**

**c.** Rate increases to help blood quickly deliver oxygen.



**4. Muscles**

**d.** Digestion slows and energy can be used in other parts of the body.



**5. Stomach/Intestines**

**e.** Signals the release of the hormones that prepare the body to fight or escape.

## PART 2

### THINK ABOUT IT

Use information from this work sheet, as well as the article "Stressed Out?" to respond to the questions below. Record your answers on a separate sheet of paper.

- 1.** Identify a situation in which you experienced stress.
- 2.** Write about how your body responded to the stressful event, and explain why your body reacted the way it did.
- 3.** What strategies will you use to reduce this type of stress in the future?

Be sure to use evidence from the texts to support your answer. Write in complete sentences.

## PART 3

### COPING WITH STRESS

Stress-release strategies can help you cope with day-to-day stress. Pick one of the exercises below and try it for at least 10 minutes every day for a week. Report back to your class how it helped you or not.



**1. Deep Breathing Focus:** Find a quiet space. Breathe deeply through your nose for a count of four. Hold your breath for a count of two. Then let the breath out through your mouth for a count of four. Try to continue for 10 minutes or more.



**2. Physical Activity:** Lace up and go for a walk or a run. Try to get your heart pumping, but not so much that you can't talk. In fact, you might ask a friend or family member to join you to help make it more fun!



**3. Step Away From Your Phone:** Put your phone away and do not check it for two hours, four hours, or a whole day. Let your parents know, and ask them not to call you unless it's absolutely necessary, and then pick up only for them. At first you may feel more stressed and worried about what you are missing. But see if it gets better as each day goes by. Track your progress.

# VOCABULARY LIST

## GRADES 6-12

### Dear Teacher,

The vocabulary list on the following pages is drawn from the “Stressed Out?” student article and work sheet.

This vocabulary can be previewed with students prior to reading or reinforced with students afterward. Encourage students to incorporate these words into their writing and discussion of the “Stressed Out?” student article and the “Stress Test” work sheet.

**STRESSED OUT?** Learn how the body responds to stress—and healthy ways to cope

**Your Body Under Pressure**

- HEALTHY:** The body's stress response is triggered when the brain's hypothalamus sends signals to the adrenal glands to release stress hormones. These hormones trigger the release of glucose and fatty acids from the liver and adipose tissue, respectively, to provide the body with energy.
- HEART:** Heart rate increases and blood pressure rises to pump more blood through the body.
- LUNGS:** Breathing rate increases to take in more oxygen.
- PROSTATE:** The prostate gland releases enzymes to help break down food.
- ADRENAL GLANDS:** The adrenal glands release hormones to help the body respond to stress.

**Chronic Stress**

- Chronic stress is a long-term stress response that can lead to health problems. It can be caused by a variety of factors, including work, school, and family.
- Chronic stress can lead to a variety of health problems, including heart disease, high blood pressure, and depression.
- Chronic stress can also lead to a variety of mental health problems, including anxiety and depression.

**Tips to Help You Cope**

- HEALTHY:** Regular exercise and a healthy diet can help reduce stress.
- TALK A TALK:** Talking to a friend or family member can help you feel better.
- DO ONE THING AT A TIME:** Focus on one task at a time to avoid feeling overwhelmed.
- GET SUPPORT:** If you are feeling stressed, talk to a professional for help.

### Supplement for: “Stressed Out?”

- Student Article: [scholastic.com/headsup/stressedout](https://www.scholastic.com/headsup/stressedout)
- Teacher’s Guide (includes work sheet): [scholastic.com/headsup/teachers/stressedout](https://www.scholastic.com/headsup/teachers/stressedout)

The vocabulary list integrates two different tiers of vocabulary words that would be used across several content areas, such as *academic*, *strategy*, and *perceive*, and domain-specific words, such as *adrenaline*, *cell*, and *gland*.

### Some suggestions for students to help their understanding include:

- organizing concept maps that include word parts, synonyms, antonyms, and examples;
- composing memory aids that explain the words or use them in a meaningful context;
- employing the words to create newspaper articles, stories, or poems

Source: Definitions below are sourced or adapted from: Merriam-Webster’s Collegiate Dictionary.

## VOCABULARY LIST FROM "STRESSED OUT?"

- **academic** (*adjective*): relating to school or learning
- **activate** (*verb*): to make active or more active
- **addiction** (*noun*): a brain disorder or illness associated with compulsive (uncontrollable) behavior, such as drug use, despite negative consequences
- **adrenal gland** (*noun*): one of a pair of glands located near the kidneys that produces hormones, including adrenaline (epinephrine) and norepinephrine
- **adrenaline** (*noun*): a chemical hormone released in the body when a person feels afraid or threatened; also called epinephrine, it has many effects on the body including causing the heart to beat faster
- **aerobic** (*adjective*): involving oxygen
- **aerobic exercise** (*noun*): physical activity such as running that causes an increase in heart and breathing rates to increase the amount of oxygen that is delivered to muscles
- **anxiety** (*noun*): a feeling of fear or worry
- **bacterium** (*sing.*)/**bacteria** (*pl.*) (*noun*): a type of microscopic single-celled organism that sometimes causes disease in other living things
- **base** (*noun*): the lower part of an object that acts as a support
- **blood pressure** (*noun*): the force caused by the blood pressing against the blood vessels that carry blood through the body (arteries); high blood pressure is connected to a higher risk for heart disease
- **cell** (*noun*): the smallest unit that makes up a living organism. Some organisms are made of only one cell, but others, like humans, are made of trillions of cells.
- **chemical** (*noun*): a substance such as an element or a mix of elements (compound) that can occur naturally or be made by a chemical process
- **chronic** (*adjective*): occurring over a long period of time or repeatedly
- **circuit** (*noun*): a path between points over which signals can move
- **constant** (*adjective*): continually occurring without stopping
- **cope** (*verb*): to handle a problem successfully
- **cortisol** (*noun*): a chemical hormone produced and released in the body when a person experiences stress; it has many effects in the body including causing cells to produce glucose
- **depression** (*noun*): a condition in which a person feels sad and hopeless and may have difficulty concentrating and thinking
- **develop** (*verb*): to grow or cause something to become larger or more advanced
- **diabetes** (*noun*): a serious disease in which the body cannot properly control the amount of glucose in the blood
- **digestion** (*noun*): the process by which the body breaks down food into simpler chemicals that can be used by cells
- **disrupt** (*verb*): to stop the normal working of something
- **evolve** (*verb*): to change over time. Living creatures evolve through a process called natural selection, which helps each generation of a species to pass on genetic traits that are best suited to their environment
- **frequent** (*adjective*): happening often
- **gland** (*noun*): one of several organs in the body that make and release substances, such as hormones, into the body
- **glucose** (*noun*): a type of sugar found in nature, including in living organisms
- **heart disease** (*noun*): a condition in which the heart works abnormally
- **hormone** (*noun*): a chemical produced by cells and released into the bloodstream that has specific effects on the body
- **hyperactive** (*adjective*): extremely active or too active

[Continued on next page.]

## VOCABULARY LIST FROM "STRESSED OUT?"

- **hypothalamus** (*noun*): the part of the brain important for controlling hormone release and regulating automatic processes such as sleep and hunger
- **impair** (*verb*): to damage or weaken something
- **impulsive** (*adjective*): doing something or tending to do something suddenly without careful planning or thought
- **meditation** (*noun*): the act or process of sitting quietly to relax the mind
- **migraine** (*noun*): a type of very bad, chronic headache
- **multitask** (*verb*): to do many things at one time
- **norepinephrine** (*noun*): a chemical hormone produced and released when the body is under stress; it has many effects on the body including increasing heart rate
- **obesity** (*noun*): a condition of being extremely overweight
- **organ** (*noun*): a structure in a plant or animal that performs a specific function, such as the brain or heart
- **perceive** (*verb*): to notice or become aware of something
- **pituitary gland** (*noun*): a gland that sits under the hypothalamus which produces and releases several hormones
- **pressure** (*noun*): the force produced when something pushes against something else
- **process** (*noun*): a series of actions taken in order to produce a certain result
- **psychological** (*adjective*): related to the mind and behavior
- **redirect** (*verb*): to change the path or direction of something
- **release** (*verb*): to allow out; to set free
- **similar** (*adjective*): almost the same as something else
- **stimulant** (*noun*): a chemical such as a drug that makes a person more active or energetic
- **strategy** (*noun*): a plan or method for reaching a certain goal
- **stress** (*noun*): a state of worry, anxiety, or tension caused by situations and problems in life
- **stress hormones** (*noun*): several chemicals produced and released in the body when a person feels threatened or afraid
- **surge** (*noun*): a sudden increase to a high level
- **technology** (*noun*): machines or equipment that are created or invented to solve problems or to do things more efficiently
- **temporarily** (*adjective*): for a limited time
- **tension** (*noun*): the physical condition of an object being stretched so that it becomes stiff; the emotional condition of being nervous or worried
- **threatening** (*adjective*): showing intention to cause harm
- **tissue** (*noun*): groups of cells that form the parts and organs in a plant or animal
- **toll** (*noun*): a cost
- **trigger** (*verb*): to cause something else to happen
- **withdrawal** (*noun*): the body's response when the presence of a drug to which it has adapted (gotten used to) is suddenly removed. Withdrawal symptoms can include pain, nausea, shaking, and anxiety