

## Teacher's Guide: The Facts About Concussions

Recommended Grade Level: 5-8

*(also applicable to grades 9-12 for students requiring significant support in learning)*

Suggested Time: About 50-60 minutes spread over one or more class periods, plus additional time to complete a writing assignment

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### Goals

Following are the big ideas that students should take away after completing this lesson:

- Concussions are a serious type of brain injury.
- New technologies are being developed to help doctors diagnose concussions.
- There are ways you can protect yourself from concussions.

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### Vocabulary

(See definitions on page 6.)

- concussion
- conscious
- diagnose
- symptom
- trauma

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### Key Literacy Strategies

Following are the primary literacy strategies students will use to complete this activity:

- Making connections (screen 2)
- Determining important information (screens 4, 6, 8, and 9; writing assignment 2)
- Comparing and contrasting ideas (screen 11)
- Constructing summaries (writing assignment 1)

Note: In addition to the key literacy strategies listed above, students will also use each of these strategies to complete this lesson:

- Monitoring comprehension
- Synthesizing
- Making predictions
- Developing vocabulary
- Connecting prior knowledge to new learning
- Developing a topic in writing
- Identifying and using text features (photographs, captions, diagrams, and/or maps)

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### Overview

*The Facts About Concussions* is a student-directed learning experience. However, while students are expected to work through the lesson on their own, teachers should be available to keep the lesson on track, organize groupings, facilitate discussions, answer questions, and ensure that all learning goals are met.

The following is a summary of the lesson screens:

- Screen 1: Students learn that they will be studying head injuries.
- Screen 2: Students read about what causes a concussion and discover some of the activities in which concussions most commonly occur. After reading this, they write down two examples of physical activities they do or watch and describe the injury risks involved in each one. They then write how they can prevent these injuries from occurring.
- Screen 3: Students learn what the goals are for the lesson, which strategies they will be using to complete the lesson, and the important vocabulary words they will use during the lesson.
- Screen 4: Students first read that concussions are serious injuries, in spite of how movies and sports often portray them. Students then watch a video about one young athlete's concussion experience and write one to two sentences about how concussions are different from other injuries.
- Screen 5: Students read about what happens in the brain when a concussion occurs and learn the two common early symptoms that follow this type of head injury. They also read about some of the more serious, longer-term effects that concussion victims experience.
- Screen 6: Students read about how it can be difficult to recognize the signs of a concussion and then watch a video about technologies that are being developed to improve the process of diagnosing concussions. After viewing, they write down one to two sentences describing what happens to white brain matter when a concussion has occurred, and why doctors think this affects attention.
- Screen 7: Students read about how doctors currently test patients for concussions in their offices or in hospitals, and how new technologies may help them do so more immediately on the sidelines of a playing field.
- Screen 8: Students answer three multiple-choice questions to show their comprehension of concussion symptoms, which part of the brain is damaged in a concussion, and technologies being developed to help diagnose concussions.
- Screen 9: Students read a PDF text about the risks involved in returning to normal activities too soon after a concussion. They then list two to three ways someone can limit the damage from a concussion while exercising, engaging in sports, or participating in other daily activities.
- Screen 10: Students complete an interactive vocabulary activity, and then choose two words from the vocabulary list and write a new sentence for each word. These tasks demonstrate their understanding of the meanings of the words.
- Screen 11: Students use an interactive activity to compare true and false statements about our understanding of concussions.
- Final  
Assignment: Students select and complete a writing assignment about the lesson topic.

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## Before the Lesson

- ❑ Go through each screen of the lesson, including all the interactive activities, so that you can experience ahead of time what students will be doing. As you go through each screen, jot down your own expectations for students' responses
- ❑ Determine if students will be working individually or in pairs on the lesson. Some students may be able to work independently with little or no support. Students who are less familiar with the subject area or who struggle with literacy skills may benefit from working with another student. An effective way to do this is to pair a stronger student with a less able reader. You can also have students work individually on certain tasks and in pairs on others, depending on their experience and needs. If students will be working in pairs on any portion of the lesson, let them know if they will be expected to type in their notes individually or together.
- ❑ Provide instruction on key vocabulary (vocabulary words are defined in the lesson on screen 3, and on page 6 of this guide).
- ❑ Determine what students already know about head injuries and, more specifically, concussions. Record their ideas on a chart. This will give you a sense of the background knowledge and possible misconceptions that students have before beginning this lesson. If time allows, return to the chart after students have completed the lesson to add new learning and correct misconceptions. Note: You may want to record their new learning in a different-colored ink so they can see how much they've learned.
- ❑ Arrange computers with Internet access so students can work individually or in pairs.
- ❑ Before students begin, suggest a timeline for completing the lesson, mention the different types of media they will encounter, and let them know how you expect them to submit their work. You may want to provide an outline of this information on a chart, chalkboard, or whiteboard, or as a handout.

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## Lesson Assessments

The following are descriptions of the lesson features that will be part of the packet of materials that students will submit. Students will use the packet for reference when writing their final assignment. It also serves as a formative assessment tool to monitor students' work as they are progressing through the lesson.

- **Notes** - Students write their ideas in response to a prompt on screens 2, 4, 6, and 9. If time allows, review their notes before students begin their writing assignment.
- **Multiple-choice questions** - Students complete the three questions on screen 8. Walk around to make sure students answer all three questions before they continue. If students click to go to the next page before they finish, their work will not be saved
- **Match It!** - Students complete an interactive vocabulary activity on screen 10. They begin by dragging the vocabulary terms into the correct sentences. After they finish and save their work, they will be able to check their answers against an answer key. When they are done, they will be asked to choose two vocabulary words and write a new sentence

for each word. Sentences should demonstrate a clear understanding of the meaning of each word. An inappropriate response would be “A cough is a symptom.” An appropriate response would be “A cough may be one symptom of a cold or disease.”

- **Compare It!** - Students complete the information sorting activity Compare It! on screen 11. Students will not be able to check their answers online, so you will need to provide them with correct answers when they are finished with the lesson. You can choose to review the answers as a class or return the corrected packet of materials to students before they begin the final assignment. Students will read several statements and then drag each one under the correct heading: True or False. The statements and the column headings under which they belong are as follows:

#### **True**

- All concussions are traumatic brain injuries that should be examined.
- Concussions produce both physical and mental symptoms.
- Concussion victims often forget what caused their injuries.
- Studying soon after having a concussion may slow the healing process.

#### **False**

- For an injury to be called a concussion, the victim must be knocked out, at least for a moment.
  - An athlete can safely return to a game immediately after suffering a concussion.
  - Concussions occur only in organized “contact” sports.
  - A single blow to the head causes more damage than many smaller ones.
- **Final Assignment** - Students complete one final writing assignment. You can choose to let students make their own selection or assign one according to your goals for the lesson. Use the rubric on page 7 to assess the writing assignments.

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### **Lesson Aids and Extensions**

Use the following suggestions to help students if they are stuck on a particular screen, to prepare students for completing their writing assignments, or as follow-up discussions to reinforce learning.

- **Watching Videos** -Encourage students to watch the videos more than once. After the initial viewing, provide students with a specific content focus to frame their next viewing(s) of the video. This will help them draw connections between the main topic and the information that the videos have to offer.
- **Participating in Discussions** - Organize class discussions or encourage students to talk about their questions in pairs. You may want to use the following discussion starters:
  - o What is a concussion?
  - o Do you know someone who has had a concussion? What was the person doing when it happened? What were the effects? Have you ever had one?

- o Why do you think sports coaches or teammates might treat concussions less seriously than other injuries?
  - o Why do you think it's hard for doctors to diagnose concussions? What are they able or unable to see to help them with their diagnoses?
  - o What could you do in your everyday activities to prevent a concussion?
  - **Reading the PDF Text** - Before they read the PDF text on screen 9, ask students when they think a person should return to normal activities after having had a concussion.
  - **Sharing Student Work** - It may be motivational, and a further learning opportunity, for students to post their final essays so that their classmates, peers, and/or parents can see them. This may also provide an opportunity for students to comment on and discuss each other's essays.
- If you do not already have access to an online writing community, Teaching Matters™ provides TeXT, free classroom publishing tools that allow teachers and students to create and publish their own online eZine. More information and a free signup are available at Teaching Matters: TeXT (<http://text.teachingmatters.org>).
- **Reflection and Self-Assessment** - After students have turned in their writing assignments, you can choose to have them assess their learning. Bring students together as a whole class or in small groups to discuss the questions below. You may want to return to the chart of their ideas developed before the lesson and record their new learning. You may also have students respond individually to the questions, and then convene the class to discuss the chart.
    - o What did you learn?
    - o What was surprising?
    - o What questions do you still have?
    - o What was the easiest for you to understand and do?
    - o What was the most difficult?

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## **Vocabulary Definitions**

### **concussion**

An injury to the brain caused by a blow, fall, or crash.

### **conscious**

Being aware of one's thoughts, environment, or situation.

### **diagnose**

To identify or determine the cause of injury or disease.

### **symptom**

A sign or change in the body that indicates that an injury has occurred or disease may be present.

### **trauma**

Serious injury caused by an accident or violence.

## Final Assignment Rubric The Facts About Concussions

1. Describe why concussions are dangerous and how we can protect ourselves from them. Be sure to include the following in your answer:
  - a. What are the symptoms of concussions?
  - b. Describe one way that scientists are trying to better diagnose concussions.
  - c. How can concussions be prevented?

2. Describe some things that people believe about concussions that are not true. Then explain how you would tell others the facts about concussions. Be sure your essay talks about how having a better understanding of concussions is important for our personal health.

4	3	2	1
<p>Provides a clear and accurate response to the question. Ideas are elaborated, with three or more relevant supporting details from the reading passage, video, and other materials in the lesson.</p>	<p>Provides an adequate response to the question. Topic and ideas are generally well organized, with two relevant supporting details from the reading passage, video, and other materials in the lesson.</p>	<p>Provides a generally accurate response, with one supporting detail from the reading passage, video, and other materials in the lesson.</p>	<p>Provides an inaccurate response to the question or fails to address the question. May include misinterpretations. Understanding of the topic is not apparent.</p>
<p>Uses at least three vocabulary words (or a form of the vocabulary words) from the lesson, and uses them all correctly.</p>	<p>Uses two vocabulary words (or a form of the vocabulary words) from the lesson, and uses them both correctly.</p>	<p>Uses one vocabulary word (or a form of the vocabulary word) from the lesson, and uses it correctly.</p>	<p>Does not use any vocabulary words, or uses vocabulary words incorrectly.</p>

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## Scoring the Rubric

Here are two suggestions for scoring the final assignment rubric. Select the option that best meets your needs or develop your own grading system.

**Option 1:** This option provides one score for each submitted assignment.

Assign a score of 4 or below for the written response (first row of the rubric) and a score of 4 or below for the use of vocabulary (second row of the rubric), for a total maximum score of 8. The interpretation of scores is as follows:

Score	Grade	Narrative Interpretation
7-8	A	Excellent
5-6	B	Good
4	C	Adequate (Fair)
3 or below	D	Minimal

**Option 2:** This option provides two scores for each submitted assignment: one for written content and one for the use of key vocabulary. An advantage of separate scores is that you can weight students' comprehension and composition differently than you do their knowledge of vocabulary. It can also help you identify specific needs for future instruction.

Assign a score of 4 or below for the written response (first row of the rubric) and a score of 4 or below for the use of vocabulary (second row of the rubric) and then score them separately. The interpretation of scores is as follows:

Score	Grade	Narrative Interpretation
4	A	Excellent
3	B	Good
2	C	Adequate (Fair)
1	D	Minimal

The final grade may look like this: A/B (A for content and B for vocabulary use).