

Case Details

Case Title:

The Case of a Middle School Rebel

Author(s):

Bethany Brooks
Susan Dundee

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Grade Level(s):

Middle School

Subject(s):

Life Science

Summary:

Chelsea and her brother Chad have just moved to a new middle school, but something isn't right. Chad can't seem to stay out of trouble, and Chelsea is getting fed up with him embarrassing her at the new school. Chelsea is surprised to learn that her brother has a treatable disorder and even more surprised when she learns of her parents' concerns about the treatment. Help Chelsea gain answers to her many questions about her brother's problem by creating a brochure of important information regarding the disorder, its treatment, and its controversy.

Suggested Citation:

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http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=164

Notes:

This case can be easily modified to use with students ranging in grade from middle school to graduate school.

Learning Objectives:

1. Students will learn about how mental disorders such as ADD/ADHD are diagnosed (using the DSM-IV) and treated.
2. Students will investigate the validity of treating mental disorders in children with prescription drugs.
3. Students will compare and contrast the neuropharmacological profile of methylphenidate (Ritalin) with the profile of illicit drugs such as cocaine or amphetamine and debate the ethics behind the current methods of treating ADD/ADHD in children.
4. Students will learn about the role the brain has in determining behavioral output and how this behavioral output can be manipulated with chemicals that act on receptors in various part of the brain.
5. Students will investigate the pathology (if any) underlying ADD/ADHD using web-based articles and sites to search for imaging (fMRI, MRI, and PET)

studies that have investigated the neurobiological substrates (if any) affected by or cause ADD/ADHD.

6. Students will investigate methylphenidate abuse among school-aged students.

National/State Standards:

Georgia Quality Core Curriculum Standards Addressed

1 Topic: Scientific Inquiry Process.

Standard: Uses process skills of observing, classifying, communicating, measuring, predicting, inferring, identifying, and manipulating variables. Also uses skills of recording, analyzing and operationally defining, formulating models, experimenting, constructing hypotheses, and drawing conclusions.

Georgia Performance Standards

S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works. (NSES Content Standard A)

S7CS6. Students will communicate scientific ideas and activities clearly. (NSES Content Standard A)

S7CS7. Students will question scientific claims and arguments effectively. (NSES Content Standard A) a. Question claims based on vague attributions (such as "Leading doctors say...") or on statements made by people outside the area of their particular expertise. b. Identify the flaws of reasoning that are based on poorly designed research (i.e., facts intermingled with opinion, conclusions based on insufficient evidence).

S7CS8. Students will investigate the characteristics of scientific knowledge and how that knowledge is achieved. (NSES Content Standard A) Students will apply the following to scientific concepts: a. When similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, which often requires further study. Even with similar results, scientists may wait until an investigation has been repeated many times before accepting the results as meaningful. b. When new experimental results are inconsistent with an existing, well-established theory, scientists may pursue further experimentation to determine whether the results are flawed or the theory requires modification. c. As prevailing theories are challenged by new information, scientific knowledge may change.

S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems. (NSES Content Standard C, E,F)