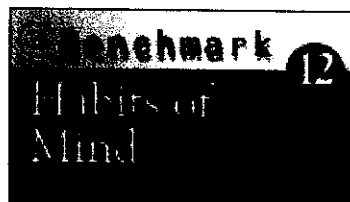


# Science NetLinks

NAAS marcopolo



## Adolescent Sleep

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### Purpose

To discuss, summarize, and express alternative positions regarding a study on adolescent sleep.

### 12D Communication Skills #5

Participate in group discussions on scientific topics by restating or summarizing accurately what others have said, asking for clarification or elaboration, and expressing alternative positions....

### \* Resources

- [Northwest Regional Educational Laboratory](#)
- [School Start Time Study](#)

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### Context

There are certain thinking skills associated with science, mathematics, and technology that young people need to develop during their school years. The ideas in the central benchmark emphasize the need for education to prepare students to make their way in the real world, a world in which problems abound—in the home, in the workplace, in the community, on the planet. Moreover, in their interactions with society, science and technology create the context for many personal and community issues. (*Benchmarks for Science Literacy*, p.282.)

In this lesson, students will examine the arguments for and against changing the school start time for high-school students, based upon the findings of a scientific research study.

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### Planning Ahead

Read the articles used in the lesson ahead of time. Gather related resources regarding school start time and adolescent sleep.

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### Motivation

Have students complete a homework assignment (either individually or in groups) in which they prepare a creative demonstration that expresses their response to the following statement: "Describe how you feel when you wake up on a typical school morning."

The presentation can take any form that students choose: a poem, a skit, a two-minute monologue, a poster or drawing, or any other form students can devise. Have students share their expressions with the class. After students have done so, ask the class to discuss whether they would characterize the presentations as either subjective or objective. Then discuss whether or not students feel that such presentations would persuade the local school board to change the time that school starts in the morning.

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### Development

Have students read [Academic Sleep Times and Academic Performance on the Northwest Regional Educational Library website](#). Each student should summarize the scientific idea expressed in the article and list the evidence that

is cited to support it.

It is important that students spend some time developing the skill of using evidence to judge a theory or idea. Research suggests that students at this level may make only theory-based responses, with no reference made to the presented evidence, especially if the available evidence conflicts with their own beliefs. (*Benchmarks for Science Literacy*, p. 361.)

After students have read and discussed the brief article, have them begin a new section in their science journals called, "Do Teenagers Need More Sleep?" First they should write a brief response to the following question: "Should we change the time that high school call starts in the morning? Include at least three reasons to support your opinion."

Then, take a class vote to survey where the class stands on the issue. Record the vote. After students have explored some of the research on teen sleep, you will look at both the class and the individual responses and examine how they have changed, if at all.

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Next, assign the following:

- School Start Time Study: Executive Summary August 2001
- School Start Time Study: Executive Summary November 1998

These are summaries of studies from the University of Minnesota that include a literature review of adolescents and sleep.

As students read, they should answer the following questions:

- What was the purpose of the study?
- Who were the subjects of the study?
- Describe the methods used.
- Summarize the findings of the study.
- What evidence is presented to support the findings?
- How would you assess the logic of the argument presented? Explain your reasoning.

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Discuss the reading and students' responses to the questions above. After the discussion, students should revisit the opinions they expressed earlier in their science journals. Have them answer the question: "Should we change the time that high school call starts in the morning?" again, this time citing evidence from the University of Minnesota study.

Have them list three or four examples of the strongest evidence that supports their opinions. In addition, have them identify and list three or four examples of the strongest evidence that could be used to argue against their positions.

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### Assessment

To assess student understanding, have students write editorials in which they express their opinions regarding high school start times. They must present what they feel is the strongest evidence to support their cases, and they must also attempt to refute what they perceive to be the strongest evidence against

their positions.

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### Extensions

Have students conduct a survey of the individuals in your school and community to find out how they would feel about a later school start time for high school. Compare the opinions of the various groups by age, gender, and occupation. Students can model their experimental design after that used by the University of Minnesota.

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Explore circadian rhythms, sleep, sleep disorders, sleep activism, and other sleep-related events at [The Sleep Well](#) website, from Stanford University.

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