

Sixth Grade Close Reading Activities

First Nine Weeks:

Unit 1: **Excerpt from Problems with ‘the scientific method’**

Second Nine Weeks:

Unit 3 or 4: **El Nino and La Nina Systems**

Third Nine Weeks:

Unit: 5 **Motion Graphs**

Fourth Nine Weeks:

Unit 8: **Bloodsuckers get out of bed**

Blank Form For Teacher Notes

Instruction Sheet for Finding the Lexile Level and Numbering Paragraphs in Articles

Extra Articles and Links

Excerpt from **Problems with ‘the scientific method’**

Scientists rarely follow one straightforward path to understanding the natural world

<http://www.sciencenewsforkids.org/2012/07/problems-with-the-scientific-method/>

By Jennifer Cutraro / July 5, 2012

Science Benchmark: SC.6.N.1.3: Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.

Summary: Scientists rarely follow one straightforward path to understanding the natural world. The article describes different types of scientific investigations and why the “scientific method” terminology is not applicable to most types of scientific investigations.

Essential Question: Why are other types of scientific investigations needed, other than experimentation?

Text: Lexile Level: 1140L

Questions:

Text dependent questions: (Sample questions from easy to more difficult)

- (Para. 2) According to the text, what unites the students? **LACC.68.RST.1.1**
- (Para. 1-3) Discuss with your partner the different types of science investigations being done by students according to the text. Share your answers as a group. **LACC.6.SL.1.1, LACC.68.RST.1.1**
- (Para. 4) According to Gary Garber, why does he say that the Scientific Method is a myth? **LACC.68.RST.1.1**
- (Para. 5) What are the reasons scientist choose different paths while trying to find answers? Cite evidence from the text. **LACC.68.RST.1.2**
- (Para. 9) In paragraph 9, how do the physicists in the example control the experiment? Cite evidence from the text. **LACC.68.RST.2.4, LACC.68.RST.1.1**
- (Para. 9 and 10) According to the text, how are the geologists “doing” science differently than the physicists’ controlled experiment? How are they both similar when “doing” science? Discuss with your group. **LACC.6.SL.1.1, LACC.68.RST.1.1, LACC.68.RST.2.4**

Culminating Activity

- Writing Prompt or Essential Question: **LACC.68.WHST.3.9, LACC.68.RST.1.1, LACC.68.RST.1.2**
 - According to the text.....
 - Why are other types of scientific investigations needed, other than experimentation?
 - Give examples of other types of scientific investigations.

Excerpt from **Problems with ‘the scientific method’**

Scientists rarely follow one straightforward path to understanding the natural world

<http://www.sciencenewsforkids.org/2012/07/problems-with-the-scientific-method/>: By Jennifer Cutraro / July 5, 2012



Across ages and scientific fields, students are increasingly probing their world by engaging in the types of activities scientists do. Credit: NASA/Goddard Space Flight Center/Bill Hrybyk

1. In Connecticut, first-graders load up toy cars with different amounts of mass, or stuff, and send them racing down ramps, rooting for their favorites to travel the farthest. In Texas, middle school students sample seawater from the Gulf of Mexico. And in Pennsylvania, kindergarten students debate what makes something a seed.
2. Though separated by miles and age levels, one thing unites these students: They are all trying to make sense of the natural world by engaging in the kinds of activities that scientists do.
3. You might have learned about or participated in such activities as part of something your teacher described as the “scientific method.” It’s a sequence of steps that take you from asking a question to arriving at a conclusion. But scientists rarely follow the steps of the scientific method as textbooks describe it.
4. “The scientific method is a myth,” asserts Gary Garber, a physics teacher at Boston University Academy. The term “scientific method,” he explains, isn’t even something scientists themselves came up with. It was invented by historians and philosophers during the last century to make sense of how science works. Unfortunately, he says, the term is usually interpreted to mean there is only one, step-by-step approach to science.
5. That’s a big mistake, Garber argues. “There isn’t one method of ‘doing science.’” In fact, he notes, there are many paths to finding out the answer to something. Which route a researcher chooses may depend on the field of science being studied. It might also depend on whether experimentation is possible, affordable or even ethical.
6. In some instances, scientists may use computers to model, or simulate conditions such as predicting the path of a hurricane. Other times, researchers will test ideas in the real world by observing nature. Sometimes they begin an experiment with no idea what may happen and look for patterns to develop.

The practices of science

7. But it’s not time to forget everything we thought we knew about how scientists work, says Heidi Schweingruber. She should know. She’s the deputy director of the Board on Science Education at the National Research Council, in Washington, D.C.



These eighth-grade students were challenged to design a model car that would make it to the top of the ramp first — or knock a competitor’s car off the ramp. They modified basic rubber-band-powered cars with tools such as mousetraps and wire hooks. Then pairs of students launched their cars to find the best design for the challenge. Credit: Carmen Andrews

8. In the future, she says, students and teachers will be encouraged to think not about *the* scientific method, but instead about “practices of science” — or the many ways in which scientists look for answers. “In the past, students have largely been taught there’s one way to do science,” she says. But that one-size-fits-all approach doesn’t reflect how scientists in different fields actually “do” science, she says.
9. For example, experimental physicists are scientists who study how atoms behave. These scientists might perform controlled experiments, starting with clearly defined initial conditions. Then they will change one variable, or factor, at a time. For instance, experimental physicists might smash protons into various types of atoms, such as helium in one experiment, carbon during a second experiment and lead in a third. Then they would compare differences in the collisions to learn more about the building blocks of atoms.
10. In contrast, geologists, scientists who study the history of Earth as recorded in rocks, won’t necessarily do experiments. They’re going into the field, looking at landforms, looking at clues and doing a reconstruction to figure out the past. Geologists are still collecting evidence, but it’s a different kind of evidence.
11. Current ways of teaching science might also give hypothesis testing more emphasis than it deserves, says Susan Singer, a biologist at Carleton College in Northfield, Minn. A hypothesis is a testable idea or explanation for something. Starting with a hypothesis is a good way to do science, she acknowledges, “but it’s not the only way.” “Often, we just start by saying, ‘I wonder’” Singer says. “Maybe it gives rise to a hypothesis.” Other times, she says, you may need to first gather some data and look to see if a pattern emerges.

The upside of mistakes

12. Scientists also recognize something that few students do: Mistakes and unexpected results can be blessings in disguise.
13. An experiment that doesn’t give the results that a scientist expected does not necessarily mean a researcher did something wrong. In fact, mistakes often point to unexpected results — and sometimes more important data — than the findings that scientists initially anticipated.

El Nino and La Nina Systems

Article excerpt: <http://www.kidzworld.com/article/2620-el-nino-and-la-nina-systems>

Graphic excerpt: <http://kids.earth.nasa.gov/archive/nino/intro.html>

Video: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/landslides-and-more/el-nino/>

Science Benchmarks:

SC.6.E.7.2: Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate.

SC.6.E.7.5: Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

Summary: El Nino is a weather pattern that occurs in cycles of 3-8 years. It drastically changes weather patterns and the climate of an area.

Essential Question: What are the effects of El Nino and/or El Nina on climate and weather?

Text: Lexile Level: 1170L

Questions/Activities:

1. While watching the video, take notes paying particular attention to new vocabulary terms, problems caused by the weather phenomenon, and why it forms. **LACC.68.RST.3.9, LACC.6.8.WHST.4.10**
2. Read Paragraph 2 and discuss with your group the causes and effects of El Nino. Cite evidence from the text. **LACC.68.RST.1.1, LACC.6.SL.1.1**
3. Using evidence from the diagram in sections 5 and 6, describe the differences between El Nino conditions and non El Nino conditions. **LACC.68.RST.3.7, LACC.68.WHST.3.9**
4. Using text from the article or video, cite evidence to explain the difference between El Nino and La Nina. **LACC.68.WHST.3.9, LACC.68.RST.3.9**
5. According to the text, how does El Nino change weather patterns and affect the area's climate? **LACC.6.8.WHST.4.10, LACC.68.RST.1.1**

Culminating Activity: Writing Prompt or Essential Question

According to the text or video.....

- What are the effects of El Nino and/or El Nina on climate and weather? Cite evidence from the text or video.

El Nino and La Nina Systems

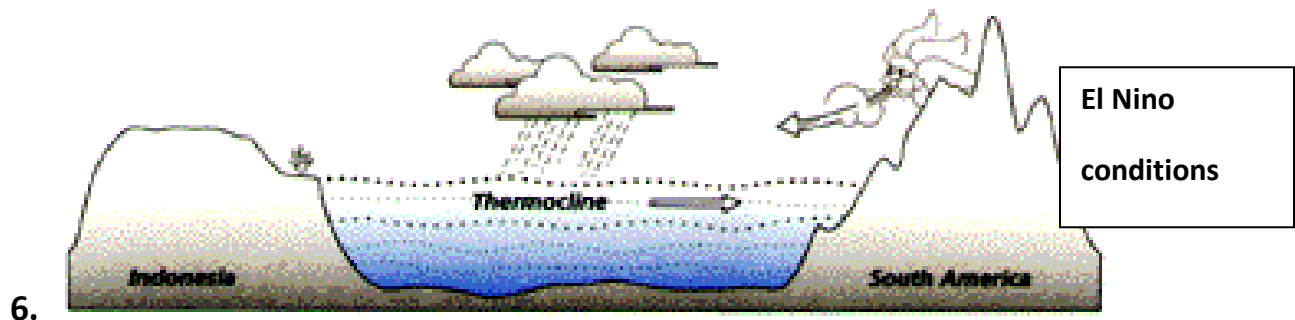
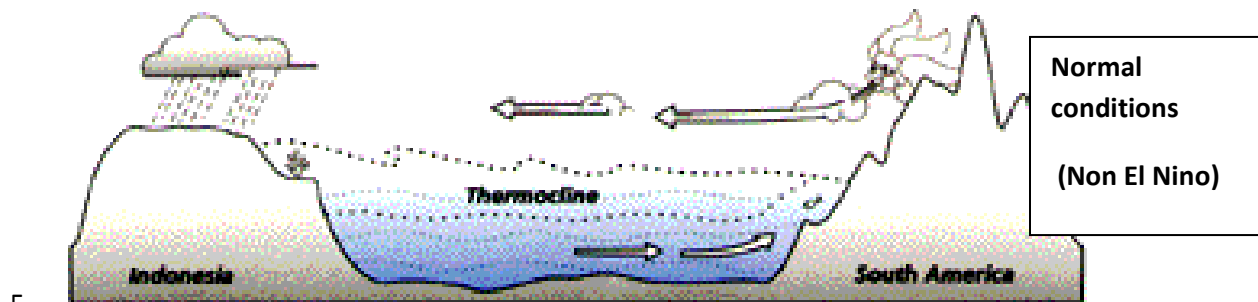
Article excerpt: <http://www.kidzworld.com/article/2620-el-nino-and-la-nina-systems>

Graphic excerpt: <http://kids.earth.nasa.gov/archive/nino/intro.html>

Video: <http://video.nationalgeographic.com/video/environment/environment-natural-disasters/landslides-and-more/el-nino/>

El Nino and La Nina - Equatorial Weather Patterns

1. El Nino is a weather pattern that passes through the Equatorial Pacific Ocean every three to eight years. El Nino is associated with warmer ocean currents but that's not all that happens when this system passes through.
2. The air pressure changes during El Nino and causes higher temperatures. When high temperatures are combined with warmer ocean currents, evaporation takes place at a greater speed. All these elements combined lead to drastic changes in normal weather patterns and can cause abnormal amounts of rain in some areas while other areas have drought conditions.
3. These rainstorms take place within the Equatorial Pacific Ocean. The storms cause massive flooding for the countries in that area. The areas affected include the United States, Peru and other parts of South and Central America.
4. While the Eastern Pacific area is being pummeled by extra rain, areas like Australia, Indonesia and India deal with severe drought. This is because much of the moisture that is normally dispersed around the world is evaporating too quickly and staying within the Eastern Pacific Ocean.



El Nino and La Nina - Role Reversal

7. Just like everything else in the world, El Nino has an opposite too. La Nina is a weather system that hits the Pacific Ocean between December and March. La Nina is as unpredictable as El Nino but usually shows up following an El Nino system. While there are mild winters and flooding associated with El Nino, the complete opposite is true when La Nina arrives. La Nina brings harsh winters with drought and abnormally cold temperatures.

8. El Nino and La Nina - Fun Facts

- Both El Nino and La Nina mean, The Child, in Spanish (one is the male version and one is the female version).
- El Nino usually refers to the baby Jesus because the weather patterns often begin to surface around Christmas time.
- El Nino is also known as ENSO (El Nino-Southern Oscillation). Southern Oscillation is a term used to describe the way air pressure changes during an El Nino system.
- The longest lasting El Nino system lasted for four years. They usually only last about 12 to 18 months.

Motion Graphs

Article excerpt: http://www.mysciencesite.com/motion_graphs.pdf

Graphics: <http://www.bbc.co.uk/schools/gcsebitesize/physics/forces/speedvelocityaccelerationfhrev2.shtml>

Science Benchmarks:

SC.6.P.12.1 Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.

Summary: Activities using various graphs showing the relationship of speed/time graphs and distance/time graphs. The article has incorporated questions into the reading.

Essential Question: How can you interpret graphs demonstrating the concept of constant speed?

Text: Lexile Level: 1000L

Questions/Activities:

Questions are interspersed within the article.

Common Core Standards Addressed:

MACC.6.EE.3.9 : (Level 2) Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*

LACC.68.RST.1.1 : (Level 2) Cite specific textual evidence to support analysis of science and technical texts.

LACC.6.SL.1.1 : (Level 3) Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

LACC.6.SL.1.2 : (Level 3) Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Culminating Activity: Writing Prompt or Essential Question

According to the text

How can you differentiate between graphs comparing Distance/Time from Graphs Showing Speed/Time?

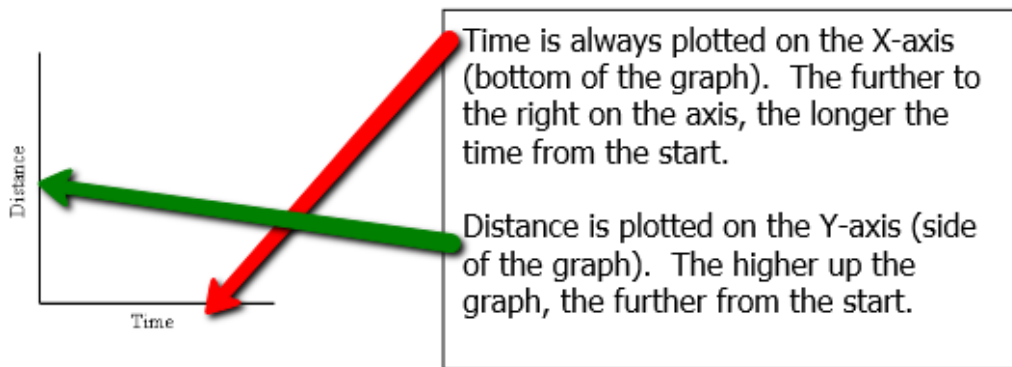
Explain and sketch how a graph illustrating constant speed would appear?

Motion Graphs

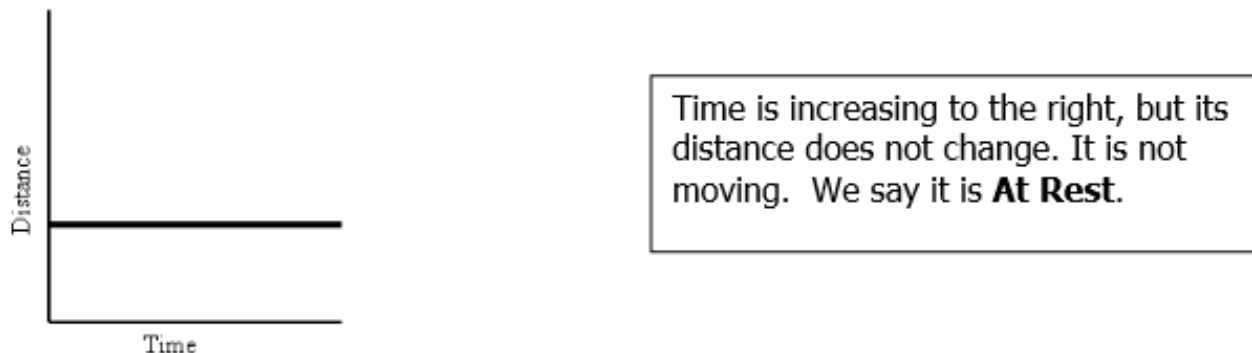
1. Describing the motion of an object is occasionally hard to do with words. Sometimes graphs help make motion easier to picture, and therefore understand.
2. Remember:
 - Motion is a change in position measured by distance and time.
 - Speed tells us the rate at which an object moves.
 - Velocity tells the speed and direction of a moving object.
 - Acceleration tells us the rate speed or direction changes.

3. DISTANCE-TIME GRAPHS

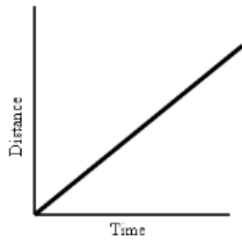
Plotting distance against time can tell you a lot about motion. Let's look at the axes:



4. If an object is not moving, a horizontal line is shown on a distance-time graph.



5. If an object is moving at a constant speed, it means it has the same increase in distance in a given time:

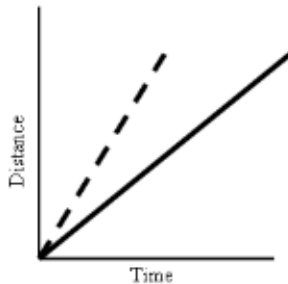


Time is increasing to the right, and distance is increasing constantly with time. The object moves at a **constant speed**.

Constant speed is shown by straight lines on a graph.

6. Let's look at two moving objects:

Both of the lines in the graph show that each object moved the same distance, but the steeper dashed line got there before the other one:



A steeper line indicates a larger distance moved in a given time. In other words, **higher speed**.

Both lines are **straight**, so both speeds are **constant**.

7. Graphs that show acceleration look different from those that show constant speed.



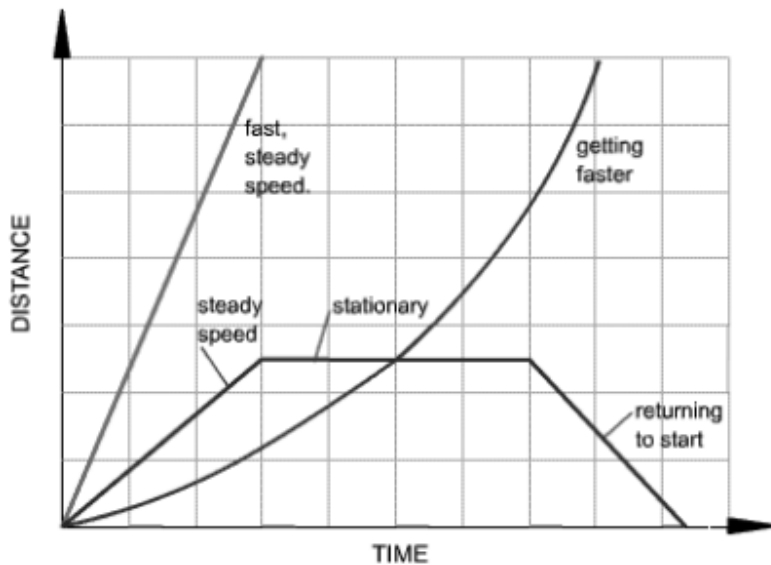
The line on this graph is curving upwards. This shows an **increase in speed**, since the line is getting steeper:

In other words, in a given time, the distance the object moves is change (getting larger). It is **accelerating**.

8. Summary:

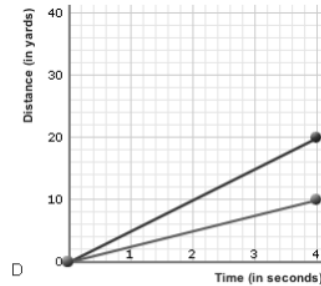
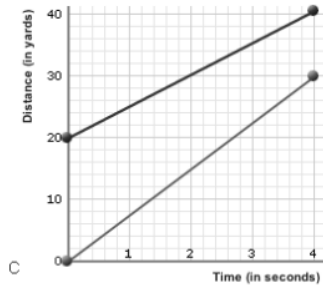
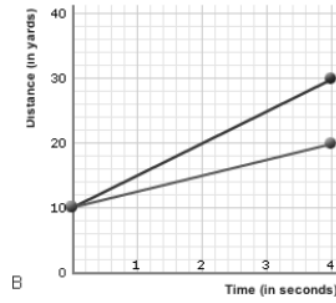
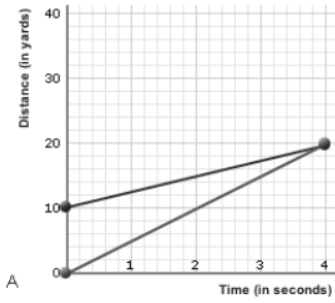
A distance-time graph tells us how far an object has moved with time.

- The steeper the graph, the faster the motion.
- A horizontal line means the object is not changing its position - it is not moving, it is at rest.
- A downward sloping line means the object is returning to the start.

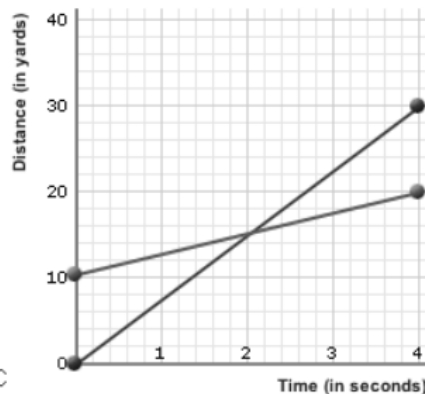
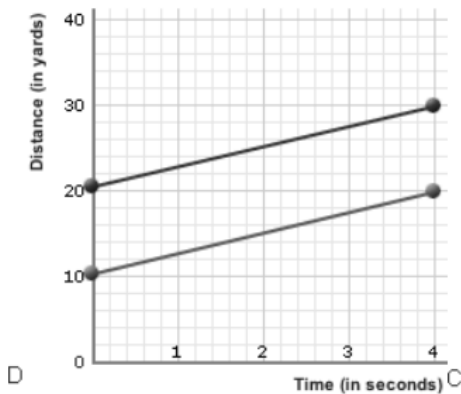
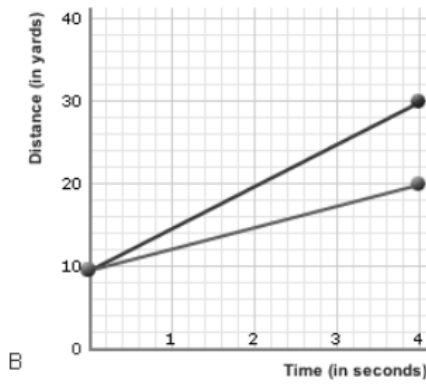
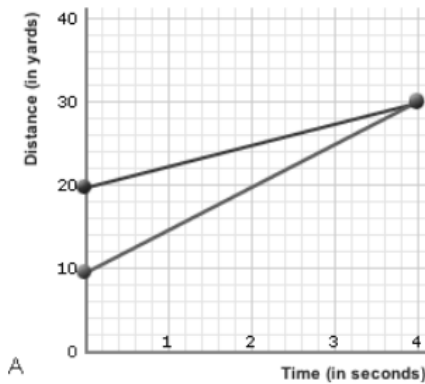


(Graph from:
<http://www.bbc.co.uk/schools/gcsebitesize/physics/forces/speedvelocityacceleration/hrev2.shtml>)

9. Which of the graphs shows that one of runners started 10 yards further ahead of the other? Explain your answer by citing Evidence from the Text.



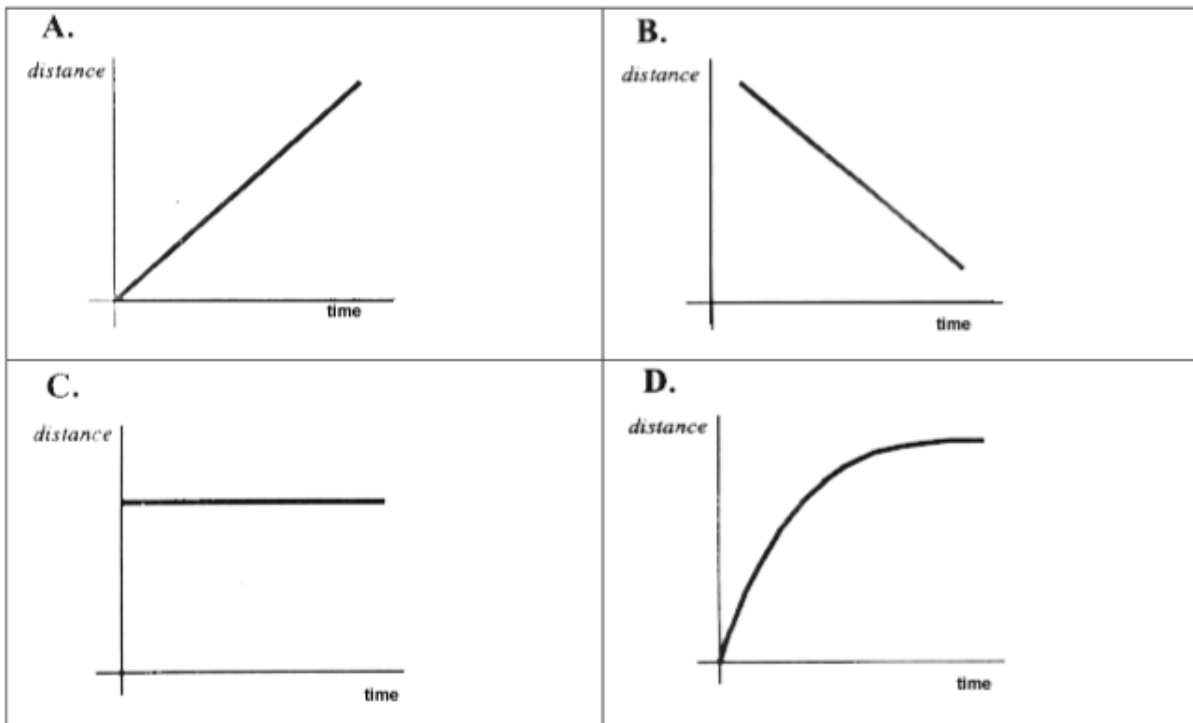
10. In which of the following graphs below are both runners moving at the same speed? Explain your answer by citing Evidence from the Text.



11. The distance-time graphs below represent the motion of a car. With a partner, match the descriptions with the graphs and explain your reasoning.

Descriptions:

- a. The car is stopped.
- b. The car is traveling at a constant speed.
- c. The speed of the car is decreasing.
- d. The car is coming back.



Graph A matches description _____ because _____.

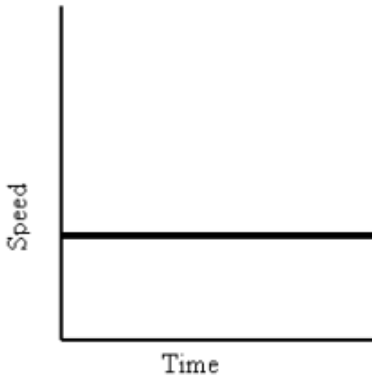
Graph B matches description _____ because _____.

Graph C matches description _____ because _____.

Graph D matches description _____ because _____.

12. SPEED-TIME GRAPHS

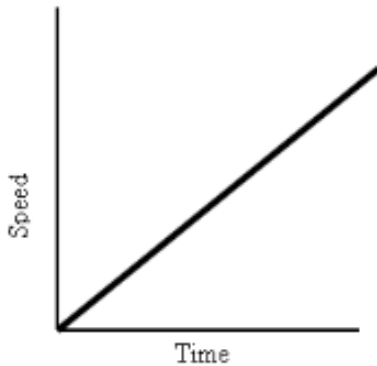
Speed-Time graphs are also called Velocity-Time graphs.



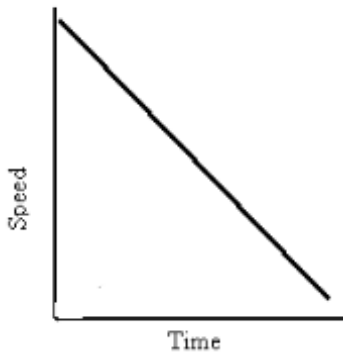
Speed-Time graphs look much like Distance-Time graphs. Be sure to read the labels!! Time is plotted on the X-axis. Speed or velocity is plotted on the Y-axis.

A straight horizontal line on a speed-time graph means that speed is constant. It is not changing over time.

A straight line does not mean that the object is not moving!

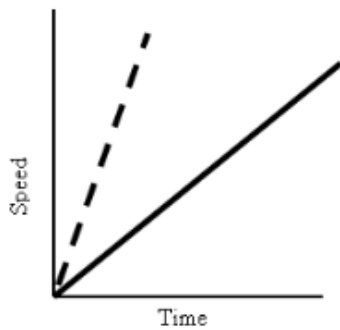


This graph shows increasing speed. The moving object is **accelerating**.



This graph shows decreasing speed. The moving object is **decelerating**.

13. What about comparing two moving objects at the same time?



Both the dashed and solid line show increasing speed.

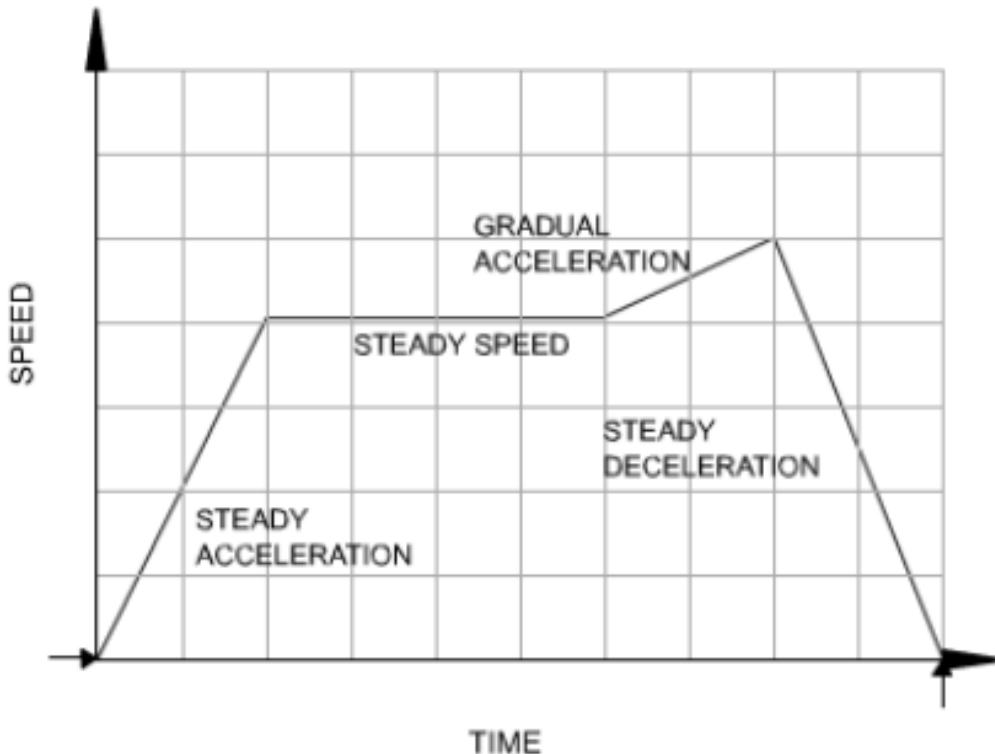
Both lines reach the same top speed, but the solid one takes longer.

The dashed line shows a greater acceleration.

14. Summary:

A speed - time graph shows us how the speed of a moving object changes with time.

- The steeper the graph, the greater the acceleration.
- A horizontal line means the object is moving at a constant speed.
- A downward sloping line means the object is slowing down.



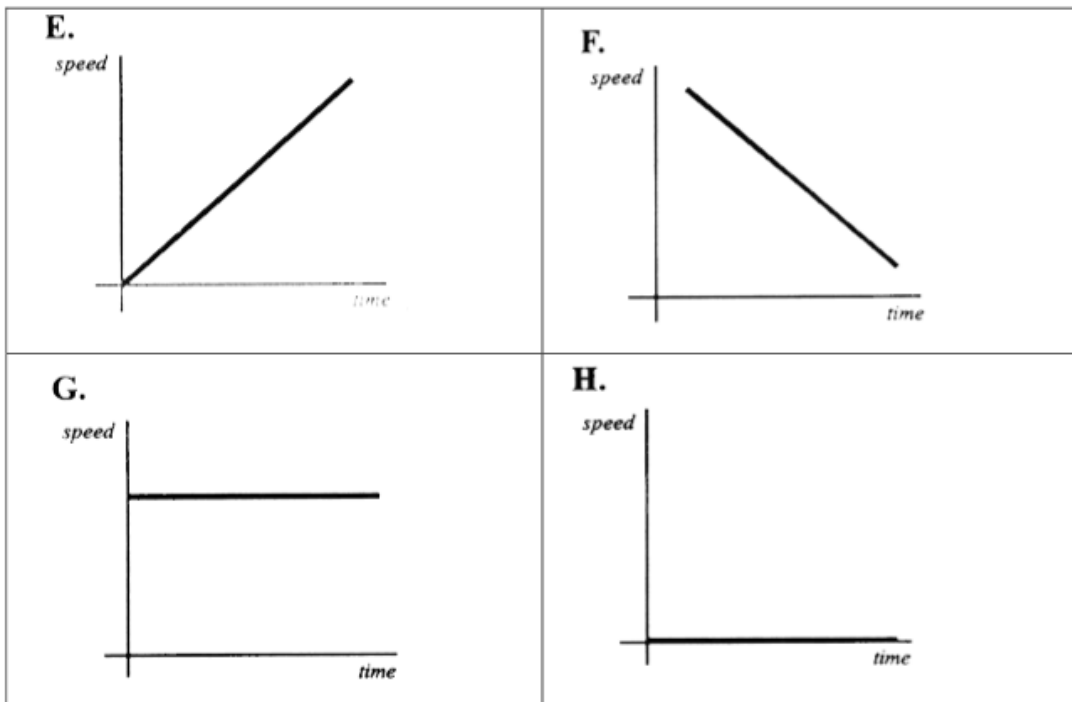
(Graph from:

<http://www.bbc.co.uk/schools/gcsebitesize/physics/forces/speedvelocityaccelerationfhrev2.shtml>)

15. The speed-time graphs below represent the motion of a car. Match the descriptions with the graphs. Explain your answers.

Descriptions:

- a. The car is stopped.
- b. The car is traveling at a constant speed.
- c. The car is accelerating.
- d. The car is slowing down.



Graph E matches description _____ because _____.

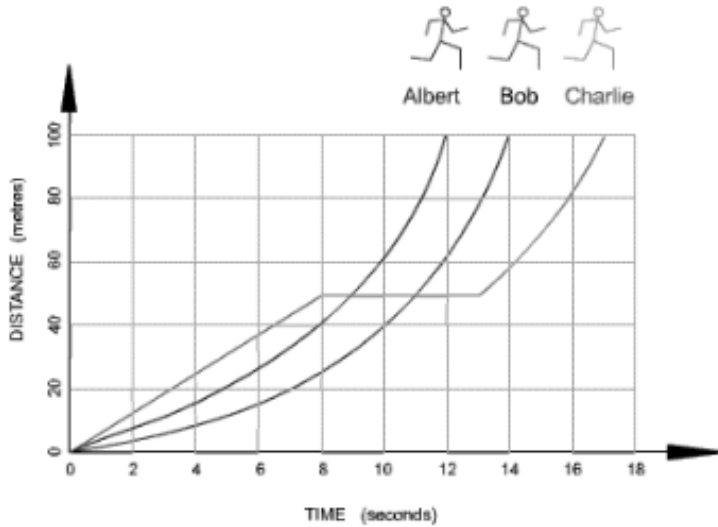
Graph F matches description _____ because _____.

Graph G matches description _____ because _____.

Graph H matches description _____ because _____.

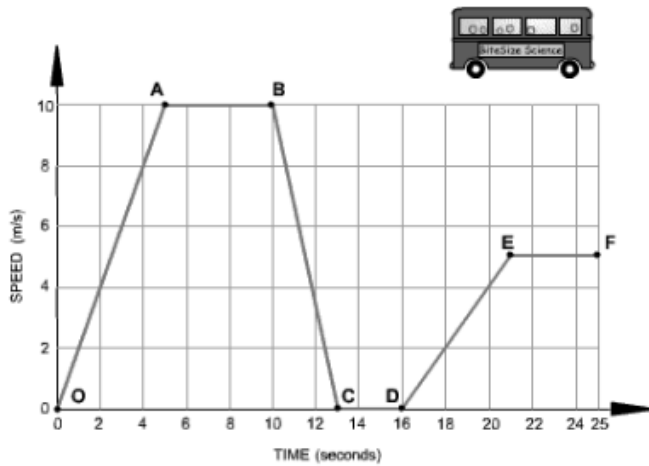
16. Questions: For Some Questions, You must use the Calculating Average Speed Formula.

$$\text{Speed} = \text{Distance divided by Time } S = D/T$$



- Look at the graph above. It shows how three runners ran a 100-meter race.
- Which runner won the race? Explain your answer.
- Which runner stopped for a rest? Explain your answer.
- How long was the stop? Explain your answer.
- How long did Bob take to complete the race? Explain your answer.
- Calculate Albert's average speed. (Figure the distance and the time first!)

17. The graph below shows how the speed of a bus changes during part of a journey.



18. Individually, Choose the correct words from the following list to describe the motion during each segment of the journey to fill in the blanks.

- a. •accelerating
- b. •decelerating
- c. •constant speed
- d. •at rest

Segment O-A The bus is _____. Its speed changes from 0 to 10 m/s in 5 seconds.

Segment A-B The bus is moving at a _____ of 10 m/s for 5 seconds.

Segment B-C The bus is _____. It is slowing down from 10 m/s to rest in 3 seconds.

Segment C-D The bus is _____. It has stopped.

Segment D-E The bus is _____. It is gradually increasing in speed.

19. Next, compare your answers to a partner. Defend your choices.

Bloodsuckers get out of bed

<http://www.sciencenewsforkids.org/2012/01/bloodsuckers-get-out-of-bed/>

Science Benchmark: [SC.6.L.14.6: Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.](#)

Summary Statement: Bedbugs are parasites and can harm the human body causing serious infection.

Essential Question: Why are bedbugs considered parasites?

Lexile Score: 1150L

Questions:

1. According to the text, how does the bed bug attack the human flesh? LACC.68.RST.1.1, LACC.68.RST.3.8
2. Based on the text, what effects are seen from a bed bug attack? LACC.68.RST.1.1, LACC.68.RST.3.8
3. According to article, where are bed bugs found? LACC.68.RST.1.1, LACC.68.RST.3.8
4. According to paragraph 10, what other organisms can be harmed from bed bugs? LACC.68.RST.1.1, LACC.68.RST.3.8
5. Read paragraph 12 with a partner and explain the life-cycle of a bedbug? LACC.68.RST.1.1 LACC.68.RST.3.8, LACC.6.SL.1.1
6. According to the text, why is blood so important to the bed bug? LACC.68.RST.1.1, LACC.68.RST.3.8
7. Starting in paragraph 21, cite evidence from the text explaining how to get rid of bed bugs? LACC.68.RST.1.1, LACC.68.RST.3.8

Culminating Activity:

Write a 6 to 7 sentence paragraph on how bed bugs can be a danger to the human body and include evidence from the text.

Benchmarks: LACC.68.RST.1.1, LACC.68.RST.3.8, LACC.6.SL.1.1

Bloodsuckers get out of bed

<http://www.sciencenewsforkids.org/2012/01/bloodsuckers-get-out-of-bed/>



A young bedbug swells and turns red as it sucks blood from a human volunteer. A youngster takes about a month to grow into an adult and needs a blood meal each time it splits out of a too-small outer skeleton.



A grown-up bedbug (shown close up, thankfully) draws blood through its tubelike mouth. Still only about the size of an apple seed, adults are easy to overlook when they hide in mattress seams or slip into electrical outlets. Credit: Piotr Naskrecki



The long sharp tube (colored purple in the magnified photo) on a bedbug's mouth can stab sleeping people without waking them up. By the time people start to feel the itching caused by a bite, the bedbug has usually crawled away. Credit: Janice Haney Carr

1. After reading about bugs with needlelike mouthparts that stick into a person's arm unnoticed (at first, before the itching starts), it's easy to wonder if that little tickle was a bug tiptoeing on your neck. Or just over and under your sock. A bathtub for example, doesn't have a lot of places for bugs to hide. A person starting to scratch and twitch can just stand up and look at all the smooth white surfaces to check for anything dark and crawling.
2. These insects had become rare in many parts of the world starting in the middle of the last century. That's when powerful pesticides — or chemicals for killing pests — first came into widespread use. But bedbugs in just a few years developed ways to resist being killed by one of the more widely used early pesticides, DDT. Over more generations, the bugs developed ways to resist other pesticides. And so in the 1990s, bedbugs began to reemerge as a major scourge, and not just in the United States. They also began busting out as a big problem in Europe, Australia and parts of Asia.
3. Bedbugs don't kill people or — as far as we know — directly transmit diseases. In 2011, a scientific paper raised questions about whether bedbugs might transmit infections. Tests in Vancouver, Canada, found the bugs carry two kinds of harmful bacteria, nicknamed MRSA and VRE. These germs can cause deep, oozing sores and other infections that very few drugs will treat.
4. But a lot of people already have those bacteria on their skin. So it's not clear whether bedbugs increase human infections with MRSA and VRE, points out Jody Gangloff-Kaufmann of Cornell University. She works on Long Island in New York.

Tiny bugs, big problems

5. Gangloff-Kaufmann specializes in insects common in towns and cities. Because bedbugs were rare when she was a kid, she had no experience with them. So to prepare for working with the returning menace, she found bedbugs and intentionally let them bite her.

6. Even if bedbugs don't increase infections, their bites are not fun, she notes. The insects spend the day clustered in small, dark crevices, such as the seams in a mattress or grooves in a bed's wooden headboard. In the dark, they hike out, covering perhaps the length of a room, to stick those needlelike mouthparts into flesh for a good, warm drink. The bite doesn't sting like a bee's. Quite the opposite. A sleeping person usually keeps on sleeping while the bug slurps.
7. The trouble comes from the bedbug's spit. While feeding, some of the bug's spit enters the little hole pierced into a person's skin. Many people are allergic to several substances in the spit. So bites can swell into red bumps, often in clusters that can look like a spotty rash, and itch insanely.
8. The problems don't end there. Bites themselves may become infected, especially if the sufferer scratches the bump open. People can lose sleep and grow miserable and anxious in their own homes. Also, friends and family may avoid visiting the homes of bedbug sufferers for fear of picking up the bugs. And like many allergies, somebody's response to bedbug bites tends to grow stronger with repeated bites. Gangloff-Kaufmann, for example, says that her first bite took days to swell into a slight bump. People who have been bitten often may start itching within hours.
9. "Bedbugs are not everywhere, but they can be anywhere," Gangloff-Kaufmann says. The bugs can squeeze through very tiny cracks, which explains why pest control workers have discovered them in such places as a stereo, TV remote, clock radio — even in the chink in the bricks of a fireplace. In the past few years, reports have emerged of bedbugs having moved into hotels, movie theaters, ambulances, hospitals, college dormitories, airport lounges, clothing stores, government office buildings and lots of other places.

A blood-only diet

10. Bedbugs feed on more than just humans. On chicken farms, bedbugs attack chickens. Special species of the insects lurk where bats sleep. Other bedbugs thrive in the bird cities that cliff swallows build. Bedbugs don't need beds. They just need blood.
11. Not all blood-eating insects need all blood, all the time. Among mosquitoes, for example, blood is for females only. Males don't touch the stuff, relying on other classic insect foods, such as nectar sipped from flowers. Bedbugs, however, really do live the vampire lifestyle. For them it's blood and nothing else.
12. A bedbug hatchling right out of the egg needs at least one hearty, warm, red meal to make it to the next stage of growth. As bedbugs reach adulthood and become about the size and color of an apple seed, they still need blood. A blood meal allows a bedbug to graduate to its next phase of life. For example, before mating, both males and females feed on blood to build up their strength.
13. But these insects can survive a long time between meals. Just how long depends on the conditions. A study from the 1940s found that bedbugs lived up to 18 months with no blood in a cool (45 degrees Fahrenheit), humid place, but only about six months at 73° F. Experiments with modern bedbugs suggest they may not be as tough.
14. The need for blood presents a puzzle for scientists who keep bedbugs in the lab to study. Stephen Kells, from the University of Minnesota in St. Paul, says that it took about a year for his lab to figure out how to get the insects to eat reliably. During one tough period when progress seemed to have stalled, one of Kells' collaborators kept hope and the bugs alive by letting them bite him. Fortunately, the researchers worked out a less-painful system: feeding the insects human blood from blood banks.

15. Harold Harlan, a retired military expert on the pests, kept his bugs alive by letting them bite him regularly for decades. He explains that he couldn't find other volunteers, and his wife would have been too upset if he'd used their dog.

Battling the bloodsuckers

16. Researchers are starting to look at the tough problem of how to control bedbugs — both inside labs and homes. Pyrethroids, the main group of pesticides considered okay to use against bedbugs in people's houses, no longer reliably kill these pests. Researchers at Ohio State University and elsewhere are now studying bedbugs' DNA, a long molecule that carries genetic information and is found in nearly every cell of every living organism. The scientists are looking for genetic changes that have allowed the bugs to become immune to these poisons.
17. With pesticides looking like an iffy solution, other researchers are trying to understand the world as bedbugs smell and taste it. This work, the scientists hope, might someday pinpoint chemicals that could improve bug traps or suggest other tricks for fighting back.
18. Bedbugs find people in part by sniffing them — and the carbon dioxide that people breathe out appears to strongly attract the bugs. The insects also respond to human skin scents detected from more than twice a human arm's length away. Whiffs of skin oils or earwax seem to be bug versions of “Mmm, what's for dinner?” scents. The smell of human perspiration doesn't appeal, though. Nor, oddly enough, does the smell of plain human blood, either fresh or dried.
19. Bedbugs make their own chemicals, including some that draw the bugs together in their daytime hideaways. Researchers have also found a compound that males release if another male grabs them and tries to mate. It's sort of a “Whoa, there, I'm a guy too” signal. It comes in handy, as male bedbugs do seem to grab anything that's the right size and moving.
20. Being grabbed by a male bedbug in a hopeful frame of mind looks like something not to take lightly. Males don't look for a natural opening in the female's body to insert sperm, their reproductive cells. Instead, males just use a sharp structure to punch a new hole through the female's body wall. Luckily for bedbugs, the sperm do eventually manage to find their way to a female's eggs.

Banishing bedbugs

21. For now, ridding one's home of bedbugs is quite challenging. Treatments can involve heating all belongings, throwing away possessions that can't be treated, steaming fabric surfaces and even heating whole rooms. So the best way to protect your own bed (or alarm clock or TV remote) is to learn what the bugs look like and check mattresses, sofas and fabric-covered chairs in homes, hotels and dormitories where you stay. Sometimes the easiest signs of these invaders are blood smears on sheets or the tiny black stains left by their poop.
22. And bedbug specialists cringe at the idea of even thinking about adopting furniture or electronics left out on curbs for free. Gangloff-Kaufmann has taught her young son to shout “bedbugs” whenever they drive by any such temptation. True, it's creepy to think about bedbugs so much, but watching for them is the best defense. And if that starts to creep you out, consider a nice sit in a dry tub to calm your nerves.

Blank Close Read Form:

Name of Article

Article(s) source

Science Benchmark(s):

Summary Statement:

Essential Question:

Lexile Score:

Questions: (With Common Core Standards)

1.

2.

3.

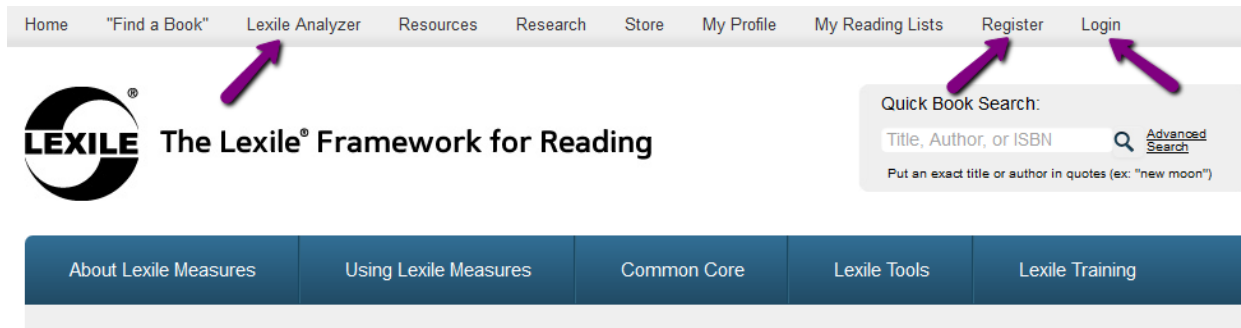
4.

5.

Culminating Activity: (Usually a writing assignment that addresses a Common Core Standard)

How to find the Lexile Level of Articles and to insert numbered paragraphs.

Go to www.Lexile.com. Register Free to use the tools or Login if you are already registered.

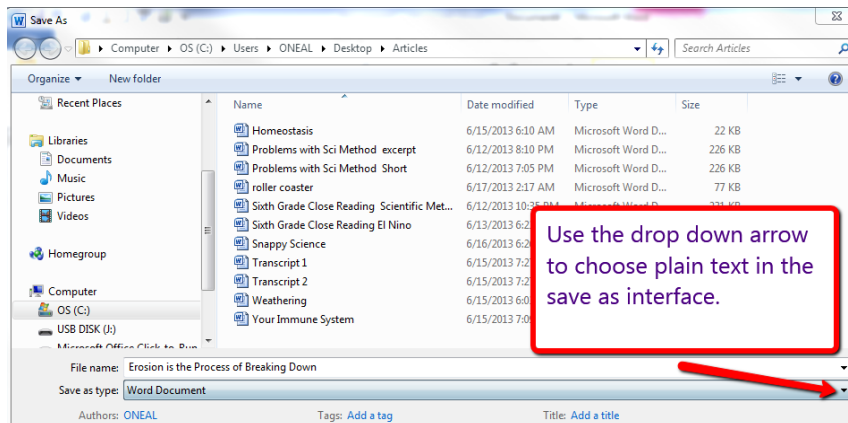


Copy and paste (text only) the article you wish to measure into a word document. To use the Lexile tool, you will have to change the word document into a PLAIN TEXT FILE by choosing **SAVE AS**. This will keep your original article safe from changes. When analyzing the text do not include http addresses, tables and graphs, or any unconventional sentences.

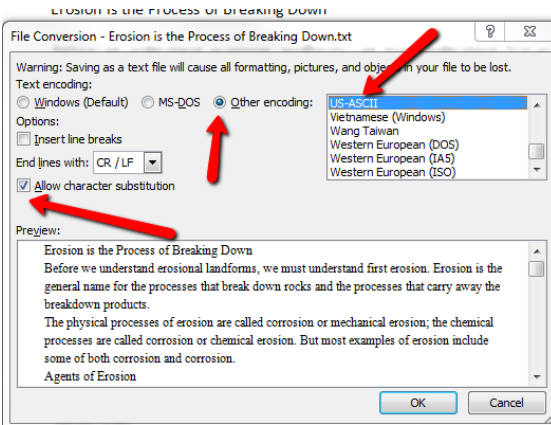
Transcript: What Is an Erosional Landform?

<http://video.about.com/geology/What-Is-an-Erosional-Landform-.htm>

I'm Geologist John Swanson and today I'm going to talk about erosional landforms. I'll be using some information from [About.com](http://www.about.com)'s Geology guide site. Landforms are formed in many



After choosing Plain text, click the save button and a dialog box will open. Use the follow the changes in the picture below.



Once these steps are completed, you will be ready to use the lexile tool. The tool will only allow you to test articles of 1000 words or less. If the article you wish to test is long, cut some of the article from your plain text file. (You should always keep your original file unchanged and only use the plain text file to analyze.)

Get a Lexile® Text Measure

You can use our online tools to determine the estimated Lexile® measure of edited, conventional prose text. Just follow our guidelines for preparing a text, upload it, and the Lexile measure will be displayed.



Click the submit button and the Lexile Measure will appear. Use the chart below to determine if the article will work within your grade band.

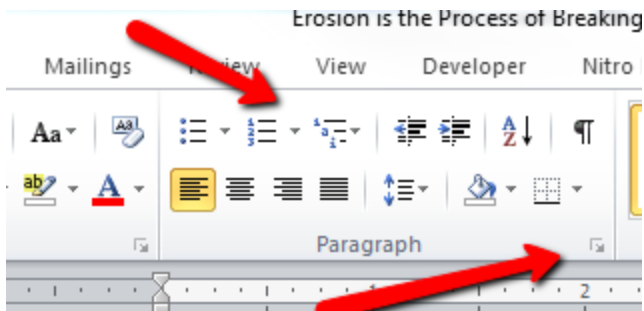
Grade Band	Current Lexile Band	"Stretch" Lexile Band*
K-1	N/A	N/A
2-3	450L-725L	420L-820L
4-5	645L-845L	740L-1010L
6-8	860L-1010L	925L-1185L
9-10	960L-1115L	1050L-1335L
11-CCR	1070L-1220L	1185L-1385L

The Stretch Lexile band is the new Common Core Requirements.

Note: If the Lexile measure seems too high for the article you chose, several factors may have come into play. Science vocabulary will make the Level go up. Also, sentence length, incomplete sentences, or mistakes when changing into plain text can cause a high Lexile level. You may need to check to make sure the article has spaces between sentences.

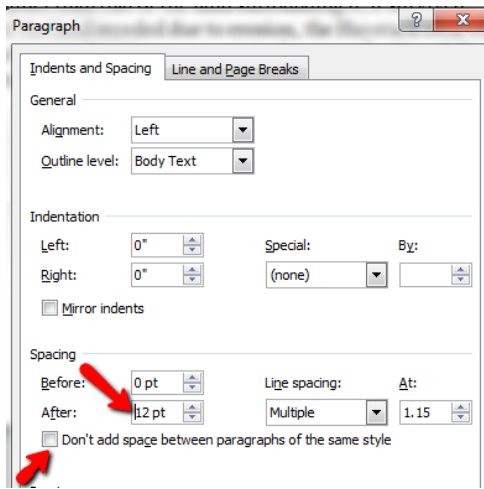
Numbered Paragraphs

Highlight the text you want to number. Everything you highlight including pictures and headings will receive a number.



**Choose the Insert Numbered list button.
We will also be choosing the format paragraph to add space between numbered paragraphs.**

Next, while the text is highlighted, Choose the Format Paragraph to open a dialog box.



In the After box, choose 12 pt and make sure the “Don’t add space button” is not checked.

Next go to your document and clean it up by backspacing to get rid of the numbers for the headings and pictures. Sometimes, the pictures will need to be cut and then pasted back into the document to get rid of the numbers.

Snappy Science: Stretched Rubber Bands Are Loaded with Potential Energy!

A fun physics problem from Science Buddies

By [Science Buddies](#)



Introduction

If you've ever been shot with a rubber band then you know it has energy in it—enough energy to smack you in the arm and cause a sting! But have you ever wondered what the relationship is between a stretched rubber band at rest and the energy it holds? The energy the rubber band has stored is related to the distance the rubber band will fly after being released. So can you guess one way to test how much energy a stretched rubber band contains?

Background

No mechanical contraption would be any fun if it did not work. But "work," in the physics sense, takes energy. Consider a rope and pulley that bring a bucket up a well. The energy that makes this mechanical system work is provided by a person who pulls up the rope.

There are actually two different kinds of energy: potential energy, which is stored energy, and kinetic energy, which is energy in motion. A great example of the difference between kinetic and potential energy is from the classic "snake-in-a-can" prank. This is an old joke where you give someone a can of peanuts and tell them to open it, but inside is actually a long spring that pops out when the lid is twisted off. Because the spring is usually decorated to look like a snake, this prank usually causes the victim to jump back and shout in surprise! When the snaky spring is compressed and secured inside the unopened can, it has potential energy. But when the can is opened, the potential energy quickly converts to kinetic energy as the fake snake jumps out.

Materials

- A long, wide concrete sidewalk, driveway or other hard surface that you can draw on with chalk (as an alternative, you can make distance markers out of paper and place them on a surface on which you cannot draw)
- Sidewalk chalk
- Metric ruler
- Rubber bands (all of the same length and kind)
- A helper
- Metric tape measure
- Paper and pencil or pen

Preparation

- Find a helper, gather your supplies and go outside to do this activity. You will want a place with a lot of clearance that has a concrete or other hard surface on which you can draw with chalk.
- Your partner will draw circles around where the flying rubber bands land, so choose a person with a keen eye and some running shoes!
- Use caution to shoot the rubber bands out in front of you—and make sure no one is in the flight path!

Procedure

- At the outside place you picked, stand where there is lots of clearance in front of you. With your chalk, draw a line in front of your toes. This is where you will line your feet up when you shoot your rubber bands. This is also the mark from where you will measure the distances your rubber bands have flown.
- Your helper can stand a few meters in front of you, but off to the side, not directly in the line of fire! Make sure he or she has a piece of chalk.
- Shoot a rubber band by hooking it on the front edge of the ruler, then stretching it back to 10 centimeters (cm) on the ruler and letting the rubber band go. Remember the angle and height at which you hold the ruler because you will need to keep it the same for each rubber band launch.
- Have your helper draw a small chalk circle where the rubber band landed.
- Shoot at least four more rubber bands in the same way, stretching them back to 10 cm on the ruler each time. Have your helper circle where each lands.
- Measure the distances from your line to the circles your helper made. Write these distances down under the heading "10 cm." *Did all five rubber bands land close to each other or was there a lot of variation in where they fell?*
- Shoot more rubber bands in the same way, except stretch them back to 15 cm, 20 cm, 25 cm or 30 cm. Shoot at least five rubber bands for each stretch length. After each launch, have your helper circle where they land. After launching five rubber bands at a given stretch length, measure the distances from your line to the circles. Write these distances under a heading for their stretch length (for example, "20 cm").
- *For each stretch length, did all five rubber bands land close to one another or was there a lot of variation? Did they land far from where the rubber bands landed that were launched using different stretch lengths?*
- Average your results for each stretch length and make a graph of your results by putting "Stretch Length (cm)" on the x -axis (this will be 10 cm, 15 cm, 20 cm, 25 cm and 30 cm) and "Launch Distance (cm)" on the y -axis (this will be the distances you measured). *Do your data follow any type of pattern or trend? What was the relationship between the stretch length and the launch distance? What do you think this indicates about the relationship between potential and kinetic energy when using rubber bands?*
- **Extra:** In this activity you kept the angle and height of the launch the same from trial to trial. How do these variables affect the distance the rubber band travels? Design a separate activity to test each of these variables separately.

Observations and results

Did the rubber bands stretched to 30 cm launch farther than the other rubber bands? Did you see a linear relationship between the launch distance and stretch length when you graphed your data?

You input potential (stored) energy into the rubber band system when you stretched the rubber band back. Because it is an elastic system, this kind of potential energy is specifically called elastic potential energy. Elastic potential energy (measured in the unit joules) is equal to $\frac{1}{2}$ multiplied by the stretch length (" x ") squared, multiplied by the spring constant " k ." The spring constant is different for every rubber band. When the rubber band is released, the potential energy is quickly converted to kinetic (motion) energy. This is equal to one half the mass (of the rubber band) multiplied by its velocity (in meters per second) squared.

Videos for Close Reading

Unit 2

El Nino Video Link (National Geographic)

video.nationalgeographic.com/video/environment/environment-natural-disasters/landslides-and-more/el-nino/

Bill Nye Climates, Covers Gulf Stream and Deserts (Safari Montage)

<http://safari0221.escambia.k12.fl.us/SAFARI/montage/play.php?keyindex=19077&location=local&filetypeid=2>

Unit 4

Climates (Safari Montage)

<http://safari0221.escambia.k12.fl.us/SAFARI/montage/play.php?keyindex=17838&location=local&filetypeid=12>

Unit 5

Science of Disney Imagineering, The: Newton's 3 Laws of Motion (Safari Montage)

<http://safari0221.escambia.k12.fl.us/SAFARI/montage/play.php?keyindex=18094&location=local&filetypeid=12>

Unit 6

Cells (Safari Montage)

<http://safari0221.escambia.k12.fl.us/SAFARI/montage/play.php?keyindex=19462&location=local&filetypeid=2>

Unit 7

Interrelationship of the Body Systems (Safari Montage)

<http://safari0221.escambia.k12.fl.us/SAFARI/montage/play.php?keyindex=16064&location=local&filetypeid=2>

Close reading articles

Smile! Dimples boost your mileage

<http://www.sciencenewsforkids.org/2013/05/smile-dimples-boost-your-mileage/>

New Life For a Used Organ

<http://www.sciencenewsforkids.org/2013/04/scientists-transplant-a-rebuilt-kidney-into-a-rat/>

Less Ice, More Seawater

<http://www.sciencenewsforkids.org/2012/12/shrinking-ice-sheets-in-antarctica-and-greenland-contribute-to-rising-sea-levels/>

How does the Density of Water Affect Ocean Currents?

<http://omp.gso.uri.edu/ompweb/doee/teacher/pdf/act1.pdf>