



Dear 6th – 8th Grade Parents and Guardians:

While your students are home, we ask that you continue to partner with us in ensuring ongoing learning. Below is a list of activities we recommend your students complete on a daily basis.



Reading (20 minutes) - if you have access to online resources, your student can log into [Clever](#) to access district resources such as Pearson Realize, Compass Learning, and [Scholastic](#). Please encourage your student to choose stories or articles to read. If you have reading materials at home, feel free to use those as well. After students are done reading, have your students tell you what their article or story was about. Students may also complete hard copy Reading activities as well. Reading packet options are available [here](#).



Writing (30 minutes)- if you have access to online resources, please visit [Scholastic Story Starters](#) (6th grade only), [Story Jumpers](#), or [Story Board That](#) for fun and creative story starters and writing prompts. Have students use these prompts and tools to create their very own story. Students can also write... a story, their feelings, their thoughts about what they are reading, a letter, an information piece about something on which they are an expert. Writing packet options are available [here](#).



Math (30 minutes) - if you have access to online resources, your student can log into [Clever](#) to access Mathia. A Math [scavenger hunt](#) is provided to encourage your student to find the math that is all around them. Visit [IXL](#), [Khan Academy](#), and [Cool Math](#) for practice and fun Math games. Math packet options are available [here](#).



Social Studies (20 minutes) - if you have online access, your student can log into [Clever](#) to access district resources. You will also find articles in both English and Spanish at [Tweentribune](#). Have students to read and complete the quiz. Also visit [Education.com](#), [Newsela](#), and [IXL](#) for interactive Social Studies activities. Social Studies packet options are available [here](#).



Science (20 minutes) - if you have access to online access, your student can log into [Clever](#) to access district resources. Visit [Energy Kids](#) to learn more about energy as well as games and activities. Visit this [Optics 4 Kids](#) to learn about cool optical illusions and visit [Ask a Biologist](#) for virtual field trips and activities. Visit [YouTube videos](#) and [National Geographic Kids](#) to learn more about science. Science packet options are available [here](#).



Exercise (60 minutes a day) - regular exercise and movement is important to do every day. Movement helps you reduce stress, build strong bones and muscles, and helps you to be ready to learn! Try to get 60 minutes of physical activity every day. Visit [GoNoodle](#) for movement videos.



Estimados padres y tutores de 6º a 8º grado:

Mientras sus estudiantes estén en casa, le pedimos que continúe colaborando con nosotros para garantizar un aprendizaje continuo. A continuación, hay una lista de actividades que recomendamos que sus estudiantes completen diariamente.



Lectura (20 minutos) - Si tiene acceso a recursos en línea, su estudiante puede iniciar sesión en [Clever](#) para acceder a recursos del distrito como Pearson Realize, Compass Learning y [Scholastic](#). Por favor anime a su estudiante a elegir historias o artículos para leer. Si tiene materiales de lectura en casa, siéntase libre de usarlos también. Una vez que los alumnos hayan terminado de leer, pídeles que le cuenten de qué se trata su artículo o historia. Los estudiantes también pueden completar actividades de lectura impresas. Las opciones de paquetes de lectura están disponibles [aquí](#).



Escritura (30 minutos)- Si tiene acceso a recursos en línea, visite [Scholastic Story Starters](#) (solo 6th grado), [Story Jumpers](#), o [Story Board That](#) para iniciadores de historias divertidas y creativas y mensajes de escritura. Haga que los estudiantes usen estas indicaciones y herramientas para crear su propia historia. Los estudiantes también pueden escribir ... una historia, sus sentimientos, sus pensamientos sobre lo que están leyendo, una carta, una información sobre algo en lo que son expertos. Las opciones de paquetes de escritura están disponibles [aquí](#).



Matemáticas (30 minutos) - Si tiene acceso a recursos en línea, su estudiante puede iniciar sesión en [Clever](#) para usar Mathia. Una búsqueda de matemáticas se puede encontrar en [scavenger hunt](#) para animar a su estudiante a encontrar las matemáticas que en todo su alrededor. Visite [IXL](#), [Khan Academy](#), y para practicar y divertirse con juegos matemáticos. Las opciones de paquetes matemáticos están disponibles [aquí](#).



Estudios sociales (20 minutos) - Si tienen acceso en línea, su estudiante puede iniciar sesión en [Clever](#) para acceder los recursos. Encontrarán artículos en inglés y español en [Tweentribune](#). Los estudiantes pueden leer y contestar las preguntas aquí. También visite [Education.com](#), [Newsela](#), y [IXL](#) para actividades interactivas. Las opciones de paquetes de estudios sociales están disponibles [aquí](#).










Ciencias (20 minutos) - Si tiene acceso a recursos en línea, su estudiante puede iniciar sesión en [Clever](#) para acceder los recursos. Visite [Energy Kids](#) para aprender más sobre energía, juegos y actividades. Visite [Optics for Kids](#) para aprender sobre ilusiones ópticas geniales y otras actividades. Visite [Ask a Biologist](#) para excursiones virtuales y actividades. Visite [YouTube videos](#) y [National Geographic Kids](#) para aprender más de ciencias. Las opciones de paquetes de ciencias están disponibles [aquí](#).










Ejercicio (60 minutos diarios) - es importante hacer ejercicio y movimiento regularmente todos los días. ¡El movimiento te ayuda a reducir el estrés, desarrollar huesos y músculos fuertes, y te ayuda a estar listo para aprender! Intente realizar 60 minutos de actividad física todos los días. Visite [GoNoodle](#) para videos de movimiento.









<p>Access these programs from Clever at https://www.clever.com/in/maywood89</p>	
	Lexia Core 5 has literacy activities with tracked progress and customized lessons. K-5; App available
	Raz-Kids has online leveled books from basic to advanced. Students can record themselves and take quizzes. K-5; English and Spanish; App available
	Imagine Español has Spanish literacy activities with tracked progress and customized lessons. K-3; Spanish
	Imagine Math has math activities with tracked progress and customized lessons. K-5
	Wonders/Maravillas includes literature, vocabulary, writing, and grammar activities K-5; English and Spanish; App available (separate sign-in required—email teacher if needed)
	World Book A world of learning at your fingertips. Explore important people, animals, maps, science, and activities. K-8; English and Spanish
	Edgenuity Pathblazer includes Math and Reading activities linked to standards. K-8; Limited School Access


If you need login assistance with login information, contact your teacher through [email](#).






Additional Resource Links






Reading	
	https://classroommagazines.scholastic.com/support/learnathome.html Choose books, videos, and activities by grade levels
	https://www.thespanishexperiment.com/stories Children's stories in Spanish
	https://www.storylineonline.net/ Actors and Actresses read books with illustrations
	https://www.getepic.com/ 1000's of award winning books. English and Spanish Signup required, free 30 days
	https://newsela.com/ English; https://newsela.com/rules/spanish Spanish News articles written for students with quizzes and writing prompts for 3-8; English and Spanish
	https://www.tweentribune.com/ Informational text at different grade levels
	https://stories.audible.com/start-listen Free audiobooks for PreK-High school students



Online Magazines	
	Time for Kids http://www.timeforkids.com
	Scholastic News http://magazines.scholastic.com English https://classroommagazines.scholastic.com/spanish.html Spanish
	Highlights Kids https://www.highlightskids.com/
	Sport Illustrated Kids http://www.sikids.com
	National Geographic Kids http://kids.nationalgeographic.com



Writing	
	http://www.scholastic.com/teachers/story-starters/index.html Story Starter ideas by grade level
	https://www.storyboardthat.com/ Digital story telling with backgrounds, characters, and text


Dual Language	
	https://l2trec.utah.edu/news/utahdliathome/spanish.php Spanish and Dual language activities and resources

Math	
	https://www.coolmath4kids.com/ K-5 Math games, lessons, brainteasers
	https://minds-in-bloom.com/math-scavenger-hun/ K-5 Math scavenger hunt ideas
	https://www.khanacademy.org/math K-8 Practice early math through grade 8
	https://www.ixl.com/ K-8 Practice early math through grade 8
	https://www.mathgames.com/math-games.html K-8 math games by grade and topic

Science and Social Studies	
	BrainPop Jr https://jr.brainpop.com BrainPOP Español https://esp.brainpop.com BrainPop https://www.brainpop.com/ BrainPopELL https://ell.brainpop.com Animated educational videos and activities on many school topics K-8; App available (Username: district89; Password: brainpop2)
	https://www.eia.gov/kids/ Information and games about energy
	https://www.optics4kids.org/illusions Optical illusions
	https://blockly.games/ Programming games for kids
	https://www.education.com/activity/social-studies/ Social Studies activities by grade level

Health	
	https://www.gonoodle.com/ Movement and mindfulness videos
	https://aha-nflplay60.discoveryeducation.com/families Fun activities, videos, and virtual field trips

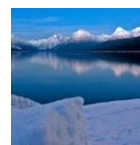
Art/Music	
	http://www.maywoodfinearts.org/?page_id=3043 Take an online class with Maywood Fine Arts
	https://colormandala.com/ Color mandelas online

For Parents	
	http://www.parenttoolkit.com/ English; http://www.parenttoolkit.com/home?lang=es Spanish Age level guides for academic, health, social emotional topics and video parenting guides English and Spanish

Virtual Field Trips/Tours

Use Google Earth to explore our National Parks.

[Badlands National Park](#)
[Death Valley National Park](#)
[Denali National Park](#)
[Everglades National Park](#)
[Glacier National Park](#)
[Grand Canyon National Park](#)
[Great Smoky Mountain National Park](#)
[Redwood National and State Parks](#)
[Rocky Mountain National Park](#)
[Yellowstone National Park](#)



Lesson ideas:

Choose a National Park. Record your observations, then choose to create one of the following:

- Design a travel brochure
- Write a newspaper article to describe the location and encourage travel there
- Create a map that shows the location of the national park

Zoos and Web Cams - Observe various zoo animals through web cams.

[Smithsonian's National Zoo](#)
[San Diego Zoo](#)
[Animal Planet Live](#)
[National Aquarium](#): Black Tip Reef Sharks, Jellies, and Pacific Coral Reef Live
[Seattle Aquarium](#): YouTube virtual field trip and lesson
[Seattle Aquarium Live Cams](#)



Lesson ideas:

Visit and observe an animal of your choice. Complete one of the following:

- Observe the animal for one week. Record these observations and then write a journal about the animal and its habits.
- Create an informative poster about the animal.
- Describe the animal's habitat.

[Planetarium](#) - Explore over 60,000 stars, locate planets, and watch sunrises and solar eclipses. If you enter your location, and you can see all the constellations that are visible in the night sky in your corner of the world.

[NASA Commercial Crew Virtual Tours](#) - YouTube series containing virtual tours of training facilities. Learn how the astronauts train for space travel and life aboard the International Space Station.

[Smithsonian Latino Center](#) - Features live broadcasts of Latina writers and virtual exhibits around latino cultures. Includes a Latino Virtual Museum Bilingual Teacher Training Took Kit that is now available online and via iTunes U.

Tour various locations from around the world.

[The Great Wall of China](#)
[Pompeii](#)
[Ellis Island](#) - this site also includes some additional activities

Lesson ideas:

Write a journal entry from about a journey to this location.
Create a travel brochure.

Take a trip to Walt Disney World and go on a virtual ride of some of Disney's famous attractions.

[Space Mountain](#)
[Splash Mountain](#)
[Test Track](#)
[Expedition Everest](#)
[Rock n Roller Coaster](#)
[Soarin'](#)
[Seven Dwarfs Mine Train](#)
[Rise of the Resistance](#)
[Mickey and Minnie's Runaway Railway](#)
[Slinky Dog Dash](#)
[Millenium Falcon/ Smuggler's Run](#)



Student eLearning Activities Log Week 8 – May 11 – May 14

Student Name _____ Grade _____

Teacher _____

Please write the activities you completed each day.

	Monday	Tuesday	Wednesday	Thursday	Friday
Example:	Mathia Reading packet Math packet PE Science experiment Raz-Kids Compass Learning	Reading packet Math packet Raz-Kids Art Imagine Math	Imagine Math Writing Virtual Tour Read a book Jumped Rope/Burpees	Imagine Math Reading packet Math packet Social Studies Music YouTube exercise video	
Activities/ Assignments					

Parent Signature _____ Date _____

Registro de actividades de aprendizaje electrónico semana 8 del 11 de mayo al 14 de mayo

Nombre _____ Grado _____

Maestro/a _____

Por favor escribe las actividades que completaste cada día.

	lunes	martes	miércoles	jueves	viernes
Ejemplo:	Mathia Paquete de lectura Paquete de matemáticas Educación física Ciencias Raz-Kids Compass Learning	Paquete de lectura Paquete de matemáticas Raz-Kids Arte Imagine Math Lexia	Imagine Math Escritura Paseo Virtual Leer un libro Brincar la cuerda/sentadillas Lexia	Imagine Math Paquete de lectura Paquete de matemáticas Estudios Social Video YouTube de ejercicio	
Actividades/ Tareas					

Firma de Padres _____ Fecha _____

Literary Analysis: Cultural Context

Practice

Cultural context refers to the background, customs, and beliefs of a particular society, as reflected in its folk tales, myths, stories, art, and other creations. People put their own world into the stories they tell and the art they create. This is true in our world today, just as it was true at any time or in any place. Knowing the cultural context of anything you read will help you appreciate and understand it.

Read the following portion of a letter written by an Englishman living in London in 1778, when the American colonies were fighting for their independence from England. Then, answer the questions that follow about the selection's cultural context.

I had expected to sail to the colony of Virginia in America next year to visit my brother. It is a difficult trip at any time. But now the ridiculous "war of independence" has made the voyage impossible. I do not understand why the American colonies wish to separate from us. They are Englishmen, as we are. Our armies protect them from their enemies. The taxes we charge them are payment for that protection. I wonder how my brother can bear to live among such people. Surely he cannot have taken up their cause.

1. _____ What seems to be the most important element in this letter's cultural context?
A. the monarchy of George III
B. the price of tea and other goods in 1778
C. the American Revolution
D. the Virginia colony's governor
2. _____ Who are "such people" (referred to in the next-to-last sentence)?
A. Englishmen
B. Virginians
C. rebellious colonists
D. the writer's brother
3. _____ Which quality seems most important in the letter's cultural context?
A. loyalty B. fairness C. imaginativeness D. kindness
4. What does the writer's comment in the opening sentences about the trip from London to Virginia tell you about travel during his time?

Literary Analysis: Cultural Context

Assess

Read the following portion of a fictional journal and then answer the questions that follow.

The most difficult part of life on this backward planet—the thing I miss the most from ours—is the fact that the people here cannot fly. They do fly, of course, but only in very large, very noisy vehicles they call “airplanes.” (These are similar to our flyers of a thousand years ago.) Unlike us, they have not discovered how to make their own bodies lighter than air. And as long as I am living here, I must pretend to be one of *them*. It will be difficult.

1. _____ What conclusion can you draw about the cultural context of this fictional journal?
 - A. The journal's author comes from a planet more advanced than Earth.
 - B. The journal is written by someone from present-day Earth living on another planet.
 - C. Technology on Earth is superior to that of the author's home.
 - D. The journal's author enjoys living on Earth because it is so similar to her home.

2. _____ When author says she must “pretend to be one of *them*,” she means

A. animals on this planet.	C. people living on Earth.
B. people from her home.	D. aliens who can fly on their own.

3. _____ The cultural context of the journal cannot be earlier than the twentieth century because of the reference to

A. “a thousand years ago.”	C. making “bodies lighter than air.”
B. “very large . . . vehicles called ‘airplanes.’”	D. “observing these creatures.”

4. How is the journal author's cultural context different from our own?

Culture Context

Answer Key

Practice, p. 272

1. C

2. C

3. A

4. Sample response: He says that the trip is always difficult, a reminder that travel over great distance was much slower than it is now. An ocean trip probably took many weeks and could be very dangerous as well as uncomfortable

Assess, p. 273

1. A

2. C

3. B

4. Sample response: The author is from a world in which people have been flying by means of their own bodies for some time, instead of in airplanes. Her world is more advanced technologically than ours, which she seems to find backward. In her society, people can travel to other worlds and disguise themselves to blend in.

What are folktales?

By Encyclopedia Britannica on 09.22.17

Word Count **558**

Level **MAX**



"Snow White" is a German fairy tale from the Brothers Grimm. It was published in 1812 and has become very popular. Fairy tales are one kind of folktale. Photo from: Wikimedia.

Folktales are a kind of story that gets passed on from generation to generation. True folktales do not have a single author. They develop as different people tell them over time. As such, they are creations of "the folk," or the people. Many folktales are very old. For generations the tales were spoken aloud and never written down. Storytellers would memorize the stories and keep them alive.

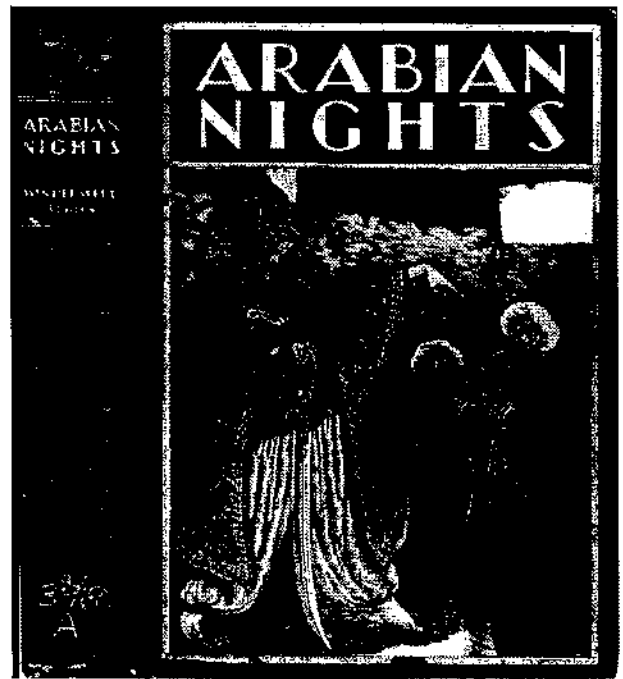
Modern authors may write their own versions of popular kinds of traditional tales, such as fables and fairy tales. Also, folktales that began as ancient spoken stories may now be written down in books. For example, the stories called "The Arabian Nights" were told aloud long ago in many places in the Middle East and elsewhere. A variety of entertaining stories in the group tell of characters such as Aladdin, Ali Baba and Sinbad the Sailor. People began collecting and writing down these colorful tales more than 1,000 years ago.

Folktales tell about many different parts of life. They may tell about joys and sorrows, animals and magic beings, and heroes and villains. They can be scary, funny or exciting. Different types of folktales may entertain, teach a lesson or try to explain things that people do not understand.

Myths are similar to folktales. They are traditional stories about a culture's beliefs about life.

Different cultures tell different stories. However, some similar themes appear in folktales told in many different places and cultures. For example, folktales about clever "tricksters" are common in western Africa, the Americas and other places. Trickster tales usually involve a weaker animal using its wits to get the better of a stronger one.

Stories of heroes are also common in many cultures. Heroic tales help bind a people together and help them remember their history. For example, King Arthur and the Knights of the Round Table are the heroes of many French and English legends.



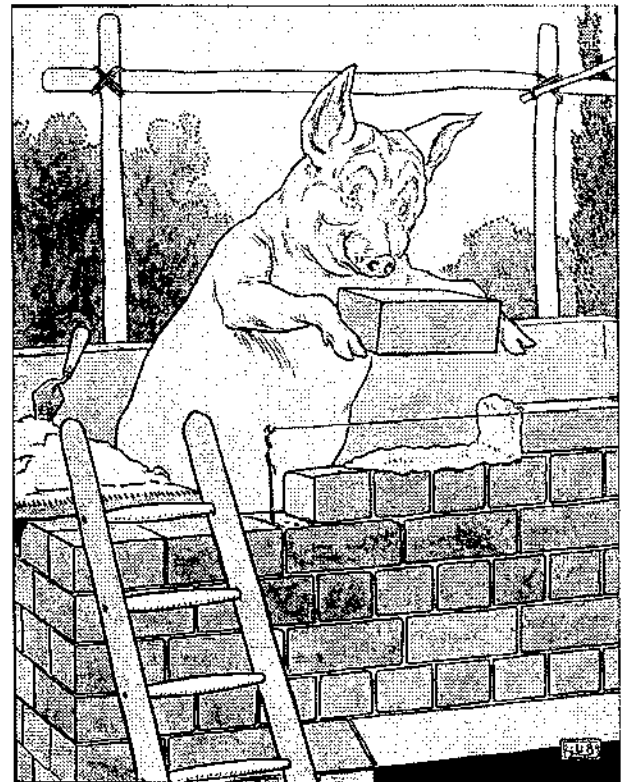
Fables

A fable is a type of folktale that teaches a lesson. Fables are usually entertaining tales featuring animals that talk and behave as people do. Because they have humanlike qualities, the animals show how foolish or wise people can be. For example, "The Three Little Pigs" teaches that hard work is important: The house built by the hardest-working pig is the only one that survives the wolf's attacks.

Some of the oldest fables came from India and Greece thousands of years ago. Many fables that are familiar in English today are said to have been written in ancient Greece by a man named Aesop.

Fairy Tales

Fairy tales are a kind of folk story about magical events and creatures. They often tell about a young person meeting fantastic beings such as fairies, witches, giants or dragons. Stories such as "Cinderella," "Little Red Riding Hood" and "Sleeping Beauty" began as spoken folktales with no one author. Two German brothers called the Brothers Grimm collected and wrote down many fairy tales in the 1800s. Some modern writers, such as Hans Christian Andersen, invented their own fairy tales.



Quiz

- 1 Which sentence from the article would be MOST important to include in a summary of the article?
- (A) Also, folktales that began as ancient spoken stories may now be written down in books.
 - (B) A variety of entertaining stories in the group tell of characters such as Aladdin, Ali Baba and Sinbad the Sailor.
 - (C) For example, folktales about clever "tricksters" are common in western Africa, the Americas and other places.
 - (D) Heroic tales help bind a people together and help them remember their history.

- 2 Read the following detail from the article.

Stories such as "Cinderella," "Little Red Riding Hood" and "Sleeping Beauty" began as spoken folktales with no one author.

HOW does this detail develop the central idea of the article?

- (A) by showing that fairy tales are significantly more popular than most folktales
 - (B) by giving examples of different fairy tales that are the most commonly known
 - (C) by showing that fairy tales are also folktales with more than just one author
 - (D) by giving examples of fairy tales that have been turned into movies recently
- 3 What is MOST likely the reason why the author included the section about fables?
- (A) to show that fables are folktales that explain how foolish people can be
 - (B) to show that "The Three Little Pigs" is the most popular of all the fables
 - (C) to show that Aesop was a famous author that wrote several popular fables
 - (D) to show that fables that were once told as stories are still around today
- 4 Which sentence from the introduction BEST introduces the idea that folktales are stories that cover many ideas about life?
- (A) Folktales are a kind of story that gets passed on from generation to generation.
 - (B) Modern authors may write their own versions of popular kinds of traditional tales, such as fables and fairy tales.
 - (C) People began collecting and writing down these colorful tales more than 1,000 years ago.
 - (D) Different types of folktales may entertain, teach a lesson or try to explain things that people do not understand.

Writing: Write a short paragraph that explains the central idea of the article. Use at least two details from the article to support your response.

Answer Key

- 1 Which sentence from the article would be MOST important to include in a summary of the article?
- (A) **Also, folktales that began as ancient spoken stories may now be written down in books.**
 - (B) A variety of entertaining stories in the group tell of characters such as Aladdin, Ali Baba and Sinbad the Sailor.
 - (C) For example, folktales about clever “tricksters” are common in western Africa, the Americas and other places.
 - (D) Heroic tales help bind a people together and help them remember their history.

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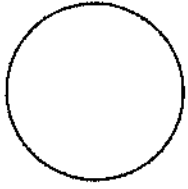
Stories such as “Cinderella,” “Little Red Riding Hood” and “Sleeping Beauty” began as spoken folktales with no one author.

HOW does this detail develop the central idea of the article?

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 - (B) by giving examples of different fairy tales that are the most commonly known
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 - (B) Modern authors may write their own versions of popular kinds of traditional tales, such as fables and fairy tales.
 - (C) People began collecting and writing down these colorful tales more than 1,000 years ago.
 - (D) **Different types of folktales may entertain, teach a lesson or try to explain things that people do not understand.**

Circle Worksheet

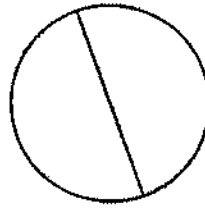
1 a.



$$d = 3.4 \text{ mm}$$

Calculate the area of the circle.

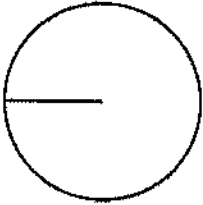
1 b.



$$d = 9.5 \text{ in}$$

Calculate the area of the circle.

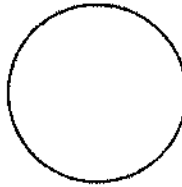
2 a.



$$r = 9.6 \text{ mm}$$

Calculate the area of the circle.

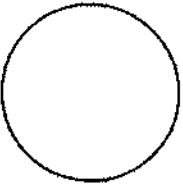
2 b.



$$r = 7.6 \text{ yd}$$

Calculate the area of the circle.

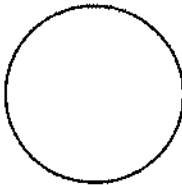
3 a.



$$r = 6.1 \text{ cm}$$

Calculate the area of the circle.

3 b.



$$d = 6 \text{ yd}$$

Calculate the area of the circle.

Answer Key

Answers are rounded to 2 decimals.

1 a. 9.07 mm^2

1 b. 70.85 in^2

2 a. 289.38 mm^2

2 b. 181.37 yd^2

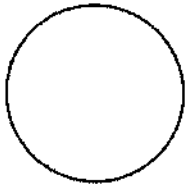
3 a. 116.84 cm^2

3 b. 28.26 yd^2

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www.HomeschoolMath.net

Circle Worksheet

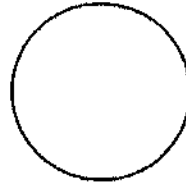
1 a.



$$d = 7 \text{ yd}$$

Calculate the circumference of the circle.

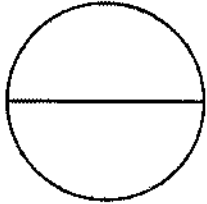
1 b.



$$r = 5.2 \text{ mm}$$

Calculate the circumference of the circle.

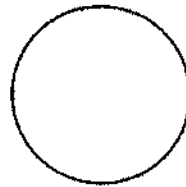
2 a.



$$d = 5.5 \text{ cm}$$

Calculate the circumference of the circle.

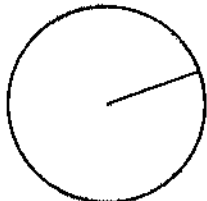
2 b.



$$d = 1.8 \text{ ft}$$

Calculate the circumference of the circle.

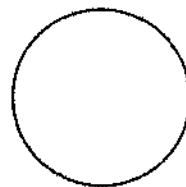
3 a.



$$r = 5.7 \text{ yd}$$

Calculate the circumference of the circle.

3 b.



$$d = 3.7 \text{ yd}$$

Calculate the circumference of the circle.

Answer Key

Answers are rounded to 2 decimals.

1 a. 21.98 yd

1 b. 32.66 mm

2 a. 17.27 cm

2 b. 5.65 ft

3 a. 35.8 yd

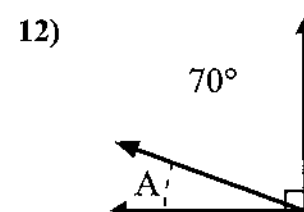
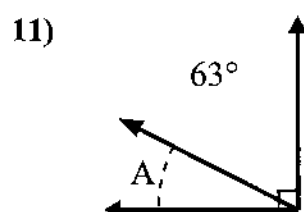
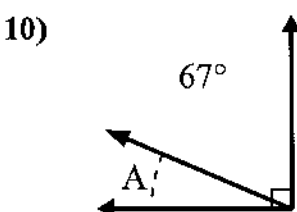
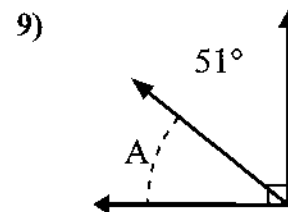
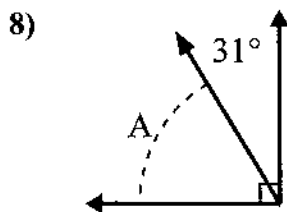
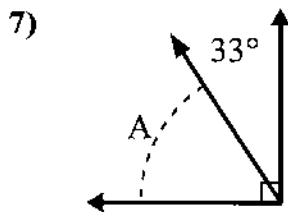
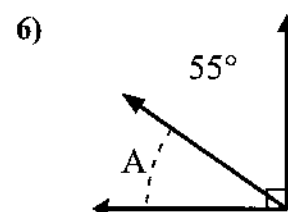
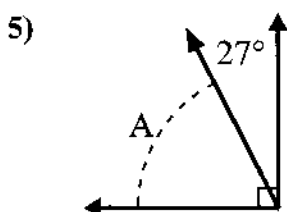
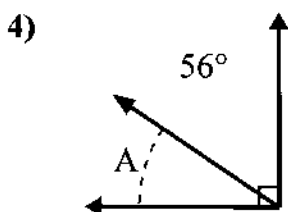
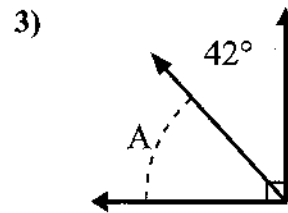
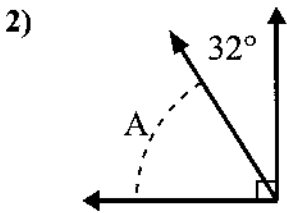
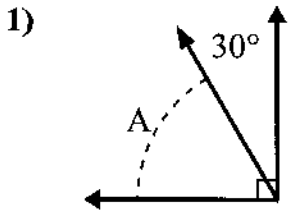
3 b. 11.62 yd

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Find the value of 'A' in the set of complementary angles.

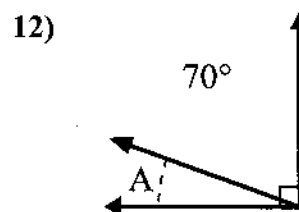
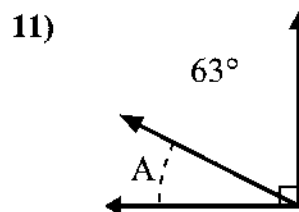
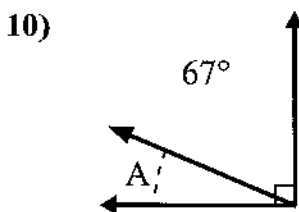
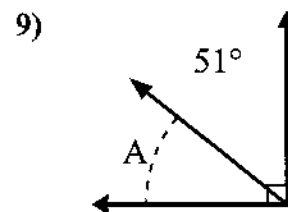
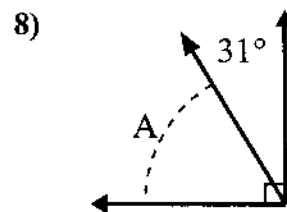
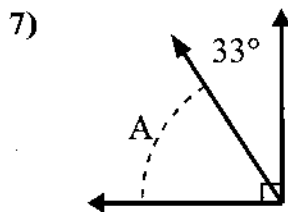
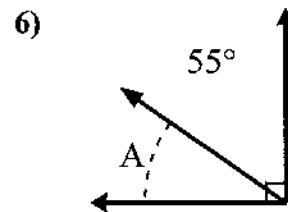
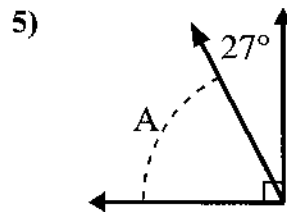
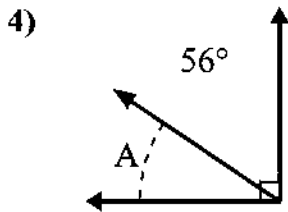
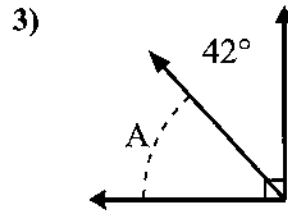
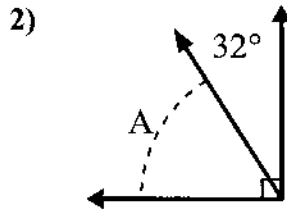
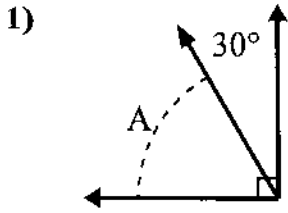
Answers



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____



Find the value of 'A' in the set of complementary angles.



Answers

1. 60°

2. 58°

3. 48°

4. 34°

5. 63°

6. 35°

7. 57°

8. 59°

9. 39°

10. 23°

11. 27°

12. 20°



Solve each problem.

- 1) The complementary angle of 59° is _____
- 2) The complementary angle of 40° is _____
- 3) The complementary angle of 5° is _____
- 4) The complementary angle of 54° is _____
- 5) The complementary angle of 85° is _____
- 6) The complementary angle of 84° is _____
- 7) The complementary angle of 44° is _____
- 8) The complementary angle of 60° is _____
- 9) The complementary angle of 34° is _____
- 10) The complementary angle of 63° is _____
- 11) The supplementary angle of 121° is _____
- 12) The supplementary angle of 78° is _____
- 13) The supplementary angle of 95° is _____
- 14) The supplementary angle of 81° is _____
- 15) The supplementary angle of 169° is _____
- 16) The supplementary angle of 62° is _____
- 17) The supplementary angle of 90° is _____
- 18) The supplementary angle of 72° is _____
- 19) The supplementary angle of 25° is _____
- 20) The supplementary angle of 68° is _____

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____



Solve each problem.

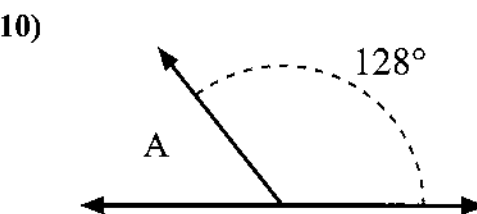
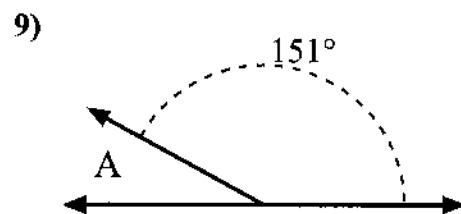
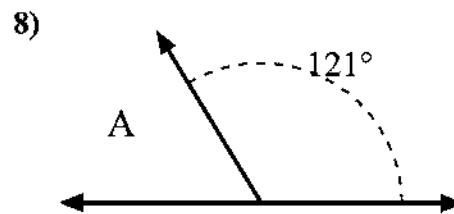
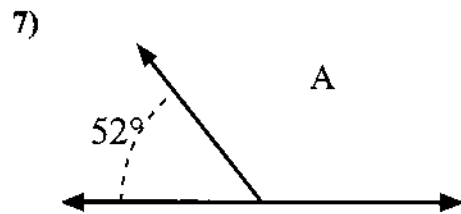
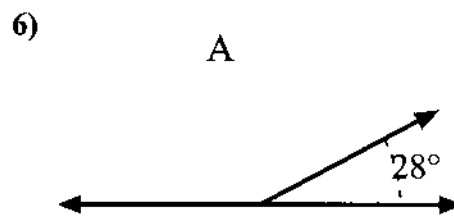
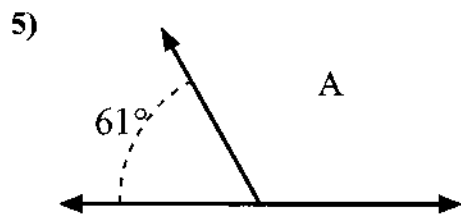
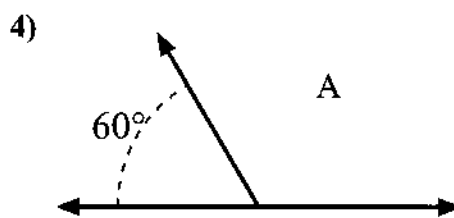
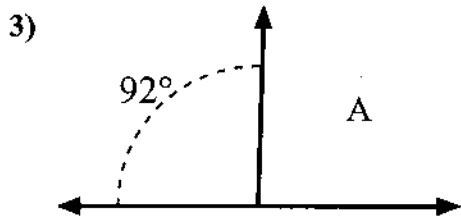
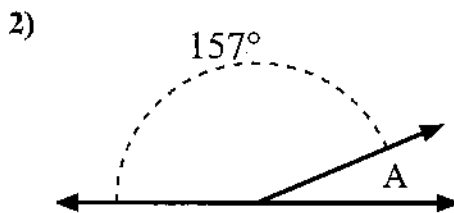
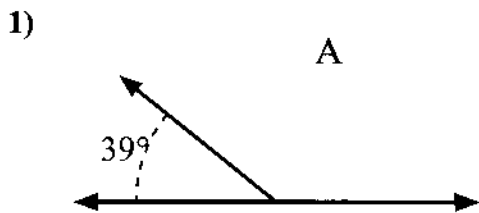
- 1) The complementary angle of 59° is 31°
- 2) The complementary angle of 40° is 50°
- 3) The complementary angle of 5° is 85°
- 4) The complementary angle of 54° is 36°
- 5) The complementary angle of 85° is 5°
- 6) The complementary angle of 84° is 6°
- 7) The complementary angle of 44° is 46°
- 8) The complementary angle of 60° is 30°
- 9) The complementary angle of 34° is 56°
- 10) The complementary angle of 63° is 27°
- 11) The supplementary angle of 121° is 59°
- 12) The supplementary angle of 78° is 102°
- 13) The supplementary angle of 95° is 85°
- 14) The supplementary angle of 81° is 99°
- 15) The supplementary angle of 169° is 11°
- 16) The supplementary angle of 62° is 118°
- 17) The supplementary angle of 90° is 90°
- 18) The supplementary angle of 72° is 108°
- 19) The supplementary angle of 25° is 155°
- 20) The supplementary angle of 68° is 112°

Answers

1. 31°
2. 50°
3. 85°
4. 36°
5. 5°
6. 6°
7. 46°
8. 30°
9. 56°
10. 27°
11. 59°
12. 102°
13. 85°
14. 99°
15. 11°
16. 118°
17. 90°
18. 108°
19. 155°
20. 112°



Find the value of 'A' in the set of supplementary angles.

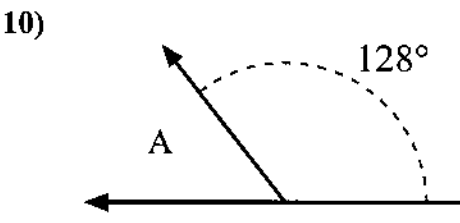
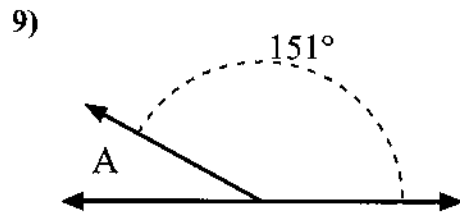
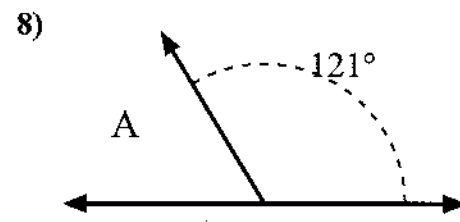
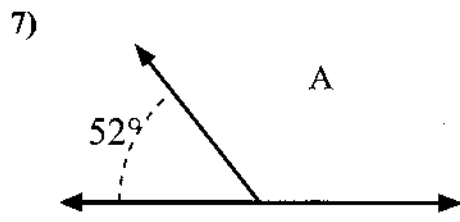
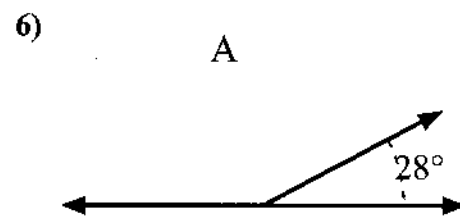
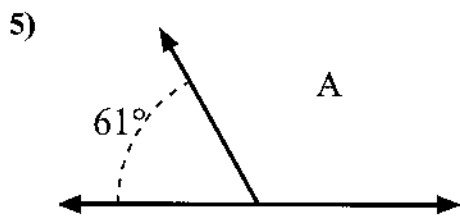
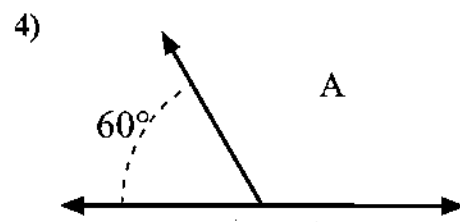
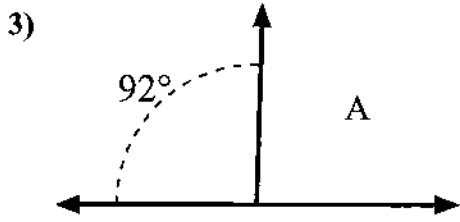
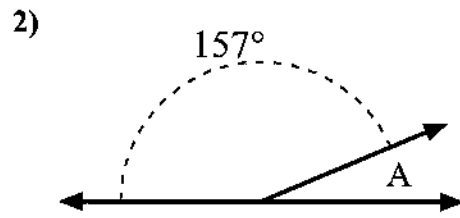
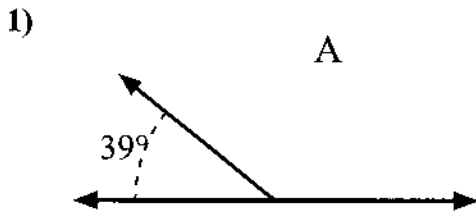


Answers

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____



Find the value of 'A' in the set of supplementary angles.



Answers

1. 141°
2. 23°
3. 88°
4. 120°
5. 119°
6. 152°
7. 128°
8. 59°
9. 29°
10. 52°



Module 17: A Divided Nation

Lesson 2

Main Idea

The debate over the expansion of slavery influenced the election of 1852.

Election of 1852

Four leading candidates for the Democratic presidential nomination emerged in 1852. It became clear that none of them would win a majority of votes. Frustrated delegates at the Democratic National Convention turned to Franklin Pierce, a little-known politician from New Hampshire. Pierce promised to honor the Compromise of 1850 and the Fugitive Slave Act. Therefore, southerners trusted Pierce on the issue of slavery. The opposing Whigs also held their convention in 1852. In other presidential elections, they had nominated well-known former generals such as William Henry Harrison and Zachary Taylor. This had been a good strategy, as both men had won. The Whigs decided to choose another war hero. They passed over the current president, Millard Fillmore, because they believed that his strict enforcement of the Fugitive Slave Act would cost votes. Instead, they chose Winfield Scott, a Mexican-American War hero. Southerners did not trust Scott, however, because he had not fully supported the Compromise of 1850.



Franklin Pierce, the Democratic candidate, was little known to the public. Party leaders thought that he could unite the party because he was a pro-slavery northerner. He promised to support the Compromise of 1850 and the Fugitive Slave Act.

Pierce won the election in a landslide. At age 47, he was the youngest person to be elected president at that point. Many Whigs viewed the election as a painful defeat not just for their candidate but also for their party.

Pierce Wins the Election of 1852

Political Party	Presidential Nominee	Electoral College	Popular Vote
Democratic	Franklin Pierce	254	50.8%
Whig	Winfield Scott	42	43.9%
Free Soil	John P. Hale	0	4.9%

Main Idea

The Kansas-Nebraska Act gave voters the right to allow or prohibit slavery.

The Kansas-Nebraska Act

In his inaugural address, President Pierce expressed his hope that the slavery issue had been put to rest “and that no sectional . . . excitement may again threaten the durability [stability] of our institutions.” Less than a year later, however, a proposal to build a railroad to the West Coast helped revive the slavery controversy and opened a new period of sectional conflict.

Douglas and the Railroad

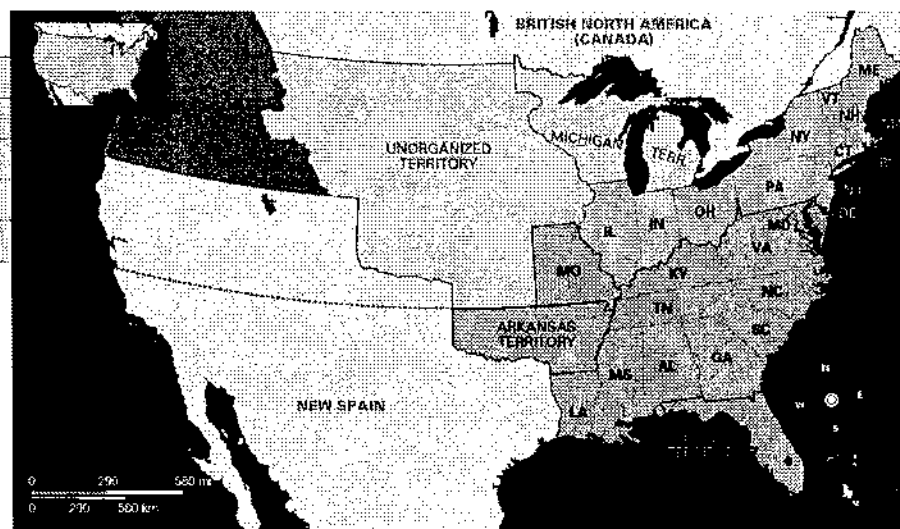
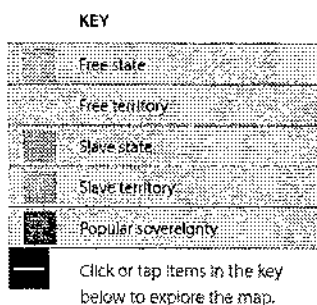
Ever since entering Congress in the mid-1840s, Stephen Douglas had supported the idea of building a railroad to the Pacific Ocean. Douglas favored a line running from Chicago. The first step toward building such a railroad would be organizing what remained of the Louisiana Purchase into a federal territory. The Missouri Compromise required that this land be free territory and eventually free states.

Southerners in Congress did not support Douglas’s plan, recommending a southern route for the railroad. Their preferred line ran from New Orleans, across Texas and New Mexico Territory, to southern California. Determined to have the railroad start in Chicago, Douglas asked a few key southern senators to support his plan. They agreed to do so if the new territory west of Missouri was opened to slavery.

Two New Territories

In January 1854 Douglas introduced what became the Kansas-Nebraska Act, a plan that would divide the remainder of the Louisiana Purchase into two territories—Kansas and Nebraska—and allow the people in each territory to decide on the question of slavery. The act would eliminate the Missouri Compromise’s restriction on slavery north of the 36°30’ line.

Antislavery northerners were outraged by the implications of the Kansas-Nebraska Act. Some believed the proposal was part of a terrible plot to turn free territory into a “dreary region . . . inhabited by masters and slaves.” All across the North, citizens attended protest meetings and sent anti-Nebraska petitions to Congress.



Even so, with strong southern support—and with Douglas and President Pierce pressuring their fellow Democrats to vote for it—the measure passed both houses of Congress and was signed into law on May 30, 1854. Lost amid all the controversy over the territorial bill was Douglas's proposed railroad to the Pacific Ocean. Congress would not approve the construction of such a railroad until 1862.

Kansas Divided

Antislavery and pro-slavery groups rushed their supporters to Kansas. One of the people who spoke out strongly against slavery in Kansas was Senator Seward.

“Gentlemen of the Slave States . . . I accept [your challenge] in . . . the cause of freedom. We will engage in competition for . . . Kansas, and God give the victory to the side which is stronger in numbers as it is in right.”
—Senator William Henry Seward

Elections for the Kansas territorial legislature were held in March 1855. Almost 5,000 pro-slavery voters crossed the border from Missouri, voted in Kansas, and then returned home. As a result, the new legislature had a huge pro-slavery majority. The members of the legislature passed strict laws that made it a crime to question slaveholders' rights and said that those who helped fugitive slaves could be put to death. In protest, antislavery Kansans formed their own legislature 25 miles away in Topeka. President Pierce, however, only recognized the pro-slavery legislature.

Main Idea

Pro-slavery and antislavery groups clashed violently in what became known as “Bleeding Kansas.”

Bleeding Kansas

By early 1856 Kansas had two opposing governments, and the population was angry. Settlers had moved to Kansas to homestead in peace, but the controversy over slavery began to affect everyone.

In April 1856 a congressional committee arrived in Kansas to decide which government was legitimate. Although committee members declared the election of the pro-slavery legislature to be unfair, the federal government did not agree.

Attack on Lawrence

The new pro-slavery settlers owned guns, and antislavery settlers received weapons shipments from friends in the East. Then, violence broke out. In May 1856 a pro-slavery grand jury in Kansas charged leaders of the antislavery government with treason. About 800 men rode to the city of Lawrence to arrest the antislavery leaders, but they had fled. The posse took its anger out on Lawrence by setting fires, looting buildings, and destroying presses used to print antislavery newspapers. One man was killed in the pro-slavery attack that became known as the Sack of Lawrence.

The Rescue of John Doy

Dr. John Doy was an abolitionist who lived in Lawrence, Kansas. On January 25, 1859, he was captured while trying to lead escaped slaves to safety. A jury in Missouri sentenced him to five years in prison. The sentence outraged many citizens of Lawrence. A group of ten abolitionists decided to undertake a daring rescue operation. They succeeded in freeing Doy on July 23. Soon after, Doy and his rescuers posed for this photograph.



John Brown's Response

Abolitionist John Brown was from New England, but he and some of his sons had moved to Kansas in 1855. The Sack of Lawrence made him determined to "fight fire with fire" and to "strike terror in the hearts of the pro-slavery people." On the night

of May 24, 1856, along Pottawatomie Creek, Brown and his men killed five pro-slavery men in Kansas in what became known as the Pottawatomie Massacre. Brown and his men dragged the pro-slavery men out of their cabins and killed them with swords. The abolitionist band managed to escape capture. Brown declared that his actions had been ordered by God.

Kansas collapsed into civil war, and about 200 people were killed. The events in "Bleeding Kansas" became national front-page news stories. In September 1856 a new territorial governor arrived and began to restore order.

Brooks Attacks Sumner

Congress also reacted to the violence of the Sack of Lawrence. Senator Charles Sumner of Massachusetts criticized pro-slavery people in Kansas and personally insulted Andrew Pickens Butler, a pro-slavery senator from South Carolina. Representative Preston Brooks, a relative of Butler's, responded strongly.



This political cartoon shows Representative Preston Brooks beating Senator Charles Sumner with his cane because of Sumner's antislavery statements. Sumner's only protection is a quill pen symbolically representing the power of argument.

On May 22, 1856, Brooks used a walking cane to beat Sumner unconscious in the Senate chambers. Dozens of southerners sent Brooks new canes, but northerners were outraged and called the attacker "Bully Brooks." Brooks only had to pay a \$300 fine to the federal

court. It took Sumner three years before he was well enough to return to the Senate.

A Divided Nation

Lesson 2



MAIN IDEAS

1. The debate over the expansion of slavery influenced the election of 1852.
2. The Kansas-Nebraska Act allowed voters to allow or prohibit slavery.
3. Pro-slavery and antislavery groups clashed violently in what became known as "Bleeding Kansas."

Key Terms and People

Franklin Pierce Democratic candidate who won the presidential election of 1852

Stephen Douglas senator who introduced what would become the Kansas-Nebraska Act

Kansas-Nebraska Act the law that divided the rest of the Louisiana Purchase into two territories—Kansas and Nebraska

Pottawatomie Massacre the murder of five pro-slavery men at Pottawatomie Creek by John Brown and several other abolitionists

Preston Brooks South Carolina representative who used a cane to beat Charles Sumner on the Senate floor for his criticisms of pro-slavery leaders

Charles Sumner Massachusetts senator who was an outspoken critic of pro-slavery leaders

Lesson Summary

ELECTION OF 1852

In the presidential election of 1852, the Democrats nominated **Franklin Pierce**. He was not a well-known politician, but his promise to honor the Compromise of 1850 assured him many southern votes. Pierce ran against Whig candidate Winfield Scott. He was a candidate Southerners did not trust because he had failed to support the Compromise of 1850. Pierce won the election by a huge margin.

Why was Franklin Pierce a popular candidate in the South?

THE KANSAS-NEBRASKA ACT

The slavery issue continued to plague the country. In 1854 **Stephen Douglas** introduced the **Kansas-Nebraska Act**, which addressed slavery in the

Lesson 2, continued

Louisiana Territory. It got its name from the two territories into which it divided the rest of Louisiana—Kansas and Nebraska. In each territory, popular sovereignty would determine the slavery question. The act ended the restriction placed on slavery by the Missouri Compromise. Northern abolitionists were upset about the act's implications.

To make sure Kansas voted in favor of slavery, pro-slavery voters left their homes in Missouri. They crossed the border to vote in Kansas. They won and quickly set up a pro-slavery government. However, those who did not believe in slavery set up a separate government in Topeka.

“BLEEDING KANSAS”

In May 1856 pro-slavery jurors charged antislavery leaders with treason. Pro-slavery forces rode to Lawrence to arrest those charged. When they found the suspects had fled, they burned and looted the town.

The Sack of Lawrence outraged many abolitionists, including John Brown of New England. Together with a group, Brown was responsible for the **Pottawatomie Massacre**, in which five pro-slavery men were killed. Quickly, Kansas fell into civil war.

Fighting even took place on the Senate floor. South Carolina representative **Preston Brooks** used his cane to beat Massachusetts senator **Charles Sumner** into unconsciousness because of Sumner's criticisms of pro-slavery leaders.

CHALLENGE ACTIVITY

Critical Thinking: Explain Write a few sentences to explain how Kansas got the nickname “Bleeding Kansas.”

How did the Kansas-Nebraska Act get its name?

What do you think would be the consequences of one state having two governments?

What caused the Sack of Lawrence?

Was Senator Charles Sumner for or against slavery?

Lesson 2, *continued*

Charles Sumner	Kansas-Nebraska Act	Preston Brooks
Franklin Pierce	Pottawatomie Massacre	Stephen Douglas
John Brown		

DIRECTIONS On the line provided before each statement, write **T** if a statement is true and **F** if a statement is false. If the statement is false, write the correct term on the line after each sentence that makes the sentence a true statement.

- _____ 1. Franklin Pierce attacked Charles Sumner in the Senate chamber and beat him unconscious with a cane.

- _____ 2. Democratic candidate Stephen Douglas won the presidential election of 1852.

- _____ 3. Preston Brooks, a senator from Massachusetts, spoke out against the pro-slavery people in Kansas and was beaten by a fellow senator.

- _____ 4. The Pottawatomie Massacre resulted in the deaths of five pro-slavery men in Kansas.

- _____ 5. Senator Stephen Douglas introduced the Kansas-Nebraska Act.

- _____ 6. The Kansas-Nebraska Act divided part of the Louisiana Purchase into two territories—Kansas and Nebraska.

- _____ 7. In 1855 abolitionist John Brown and his sons were responsible for the massacre of five pro-slavery men that led to a civil war in Kansas.

- _____ 8. The Pottawatomie Massacre removed the Missouri Compromise’s restriction on slavery.

ANSWER KEY

Name _____ Class _____ Date _____

A Divided Nation

Lesson 2



MAIN IDEAS

1. The debate over the expansion of slavery influenced the election of 1852.
2. The Kansas-Nebraska Act allowed voters to allow or prohibit slavery.
3. Pro-slavery and antislavery groups clashed violently in what became known as "Bleeding Kansas."

Key Terms and People

Franklin Pierce Democratic candidate who won the presidential election of 1852

Stephen Douglas senator who introduced what would become the Kansas-Nebraska Act

Kansas-Nebraska Act the law that divided the rest of the Louisiana Purchase into two territories—Kansas and Nebraska

Pottawatomie Massacre the murder of five pro-slavery men at Pottawatomie Creek by John Brown and several other abolitionists

Preston Brooks South Carolina representative who used a cane to beat Charles Sumner on the Senate floor for his criticisms of pro-slavery leaders

Charles Sumner Massachusetts senator who was an outspoken critic of pro-slavery leaders

Lesson Summary

ELECTION OF 1852

In the presidential election of 1852, the Democrats nominated **Franklin Pierce**. He was not a well-known politician, but his promise to honor the Compromise of 1850 assured him many southern votes. Pierce ran against Whig candidate Winfield Scott. He was a candidate Southerners did not trust because he had failed to support the Compromise of 1850. Pierce won the election by a huge margin.

Why was Franklin Pierce a popular candidate in the South?

because he promised to honor the Compromise of 1850

THE KANSAS-NEBRASKA ACT

The slavery issue continued to plague the country. In 1854 **Stephen Douglas** introduced the **Kansas-Nebraska Act**, which addressed slavery in the

Lesson 2, continued

Louisiana Territory. It got its name from the two territories into which it divided the rest of Louisiana—Kansas and Nebraska. In each territory, popular sovereignty would determine the slavery question. The act ended the restriction placed on slavery by the Missouri Compromise. Northern abolitionists were upset about the act's implications.

To make sure Kansas voted in favor of slavery, pro-slavery voters left their homes in Missouri. They crossed the border to vote in Kansas. They won and quickly set up a pro-slavery government. However, those who did not believe in slavery set up a separate government in Topeka.

“BLEEDING KANSAS”

In May 1856 pro-slavery jurors charged antislavery leaders with treason. Pro-slavery forces rode to Lawrence to arrest those charged. When they found the suspects had fled, they burned and looted the town.

The Sack of Lawrence outraged many abolitionists, including John Brown of New England. Together with a group, Brown was responsible for the **Pottawatomie Massacre**, in which five pro-slavery men were killed. Quickly, Kansas fell into civil war.

Fighting even took place on the Senate floor. South Carolina representative **Preston Brooks** used his cane to beat Massachusetts senator **Charles Sumner** into unconsciousness because of Sumner's criticisms of pro-slavery leaders.

CHALLENGE ACTIVITY

Critical Thinking: Explain Write a few sentences to explain how Kansas got the nickname “Bleeding Kansas.”

How did the Kansas-Nebraska Act get its name?

The name came from the two territories that the rest of Louisiana was divided into.

What do you think would be the consequences of one state having two governments?

Possible answer: There would be many conflicts between the two governments to see which had control over the state.

What caused the Sack of Lawrence?

When pro-slavery forces arrived in Lawrence to arrest those charged and found they had fled, they burned and looted the town.

Was Senator Charles Sumner for or against slavery?

against slavery _____

The Kansas-Nebraska Act divided the rest of Louisiana into Kansas and Nebraska, and allowed each new territory to determine if it would have slavery. Pro-slavery voters left Missouri to vote in Kansas and started a pro-slavery government. Antislavery citizens set up a separate government in Topeka. Actions by both groups led to a violent civil war in Kansas.

Lesson 2, *continued*

Charles Sumner	Kansas-Nebraska Act	Preston Brooks
Franklin Pierce	Pottawatomie Massacre	Stephen Douglas
John Brown		

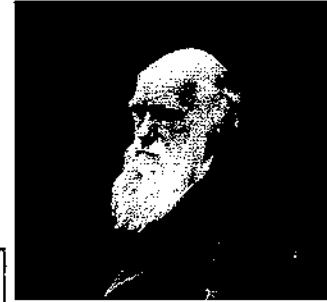
DIRECTIONS On the line provided before each statement, write **T** if a statement is true and **F** if a statement is false. If the statement is false, write the correct term on the line after each sentence that makes the sentence a true statement.

- F 1. Franklin Pierce attacked Charles Sumner in the Senate chamber and beat him unconscious with a cane.
 Preston Brooks
- F 2. Democratic candidate Stephen Douglas won the presidential election of 1852.
 Franklin Pierce
- F 3. Preston Brooks, a senator from Massachusetts, spoke out against the pro-slavery people in Kansas and was beaten by a fellow senator.
 Charles Sumner
- T 4. The Pottawatomie Massacre resulted in the deaths of five pro-slavery men in Kansas.
- T 5. Senator Stephen Douglas introduced the Kansas-Nebraska Act.
- T 6. The Kansas-Nebraska Act divided part of the Louisiana Purchase into two territories—Kansas and Nebraska.
- T 7. In 1855 abolitionist John Brown and his sons were responsible for the massacre of five pro-slavery men that led to a civil war in Kansas.
- F 8. The Pottawatomie Massacre removed the Missouri Compromise's restriction on slavery.
 Kansas-Nebraska Act

Natural Selection

Reflect

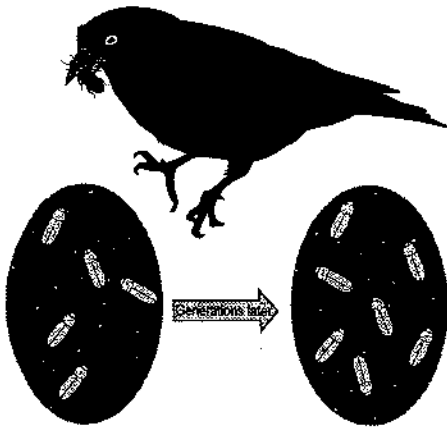
Natural selection is a popular theory proposed by Charles Darwin in the 1850s. The theory suggests that species change over time because organisms with traits well suited to their environments have greater success surviving and reproducing. Charles Darwin's theory of evolution by natural selection changed the way we understand the diversity of life.



Charles Darwin

natural selection – theory that organisms with traits that are well suited to their environment survive and reproduce more successfully

Organisms have inherited characteristics, or *traits*. Dogs inherit their fur color. Birds inherit their wingspan. Trees inherit their leaf type. Genes control these traits, and they are passed on to offspring by their parents. Some traits help an organism survive, find a mate, protect itself, or find food and shelter. Some factors encourage natural selection to take place.



Genetic variation: Differences among individuals within the same species are called genetic variation. Beetles in the image on the left vary in red and yellow color. Red beetles tended to get eaten by birds. Therefore, fewer red beetles stayed alive to reproduce. The genetic variation in color proved to be favorable to the yellow and not favorable to the red beetles. Traits that are more favorable to a species are more likely to be passed on from generation to generation. This increases the species' chances of survival. There is a

cause-and-effect relationship between the variation of traits and the probability that specific organisms will be able to survive and reproduce.

Overproduction: If a species produces more offspring than the environment can support, many of the offspring will not survive into adulthood.

Competition: Since resources such as food, water, and space are limited, offspring must compete for the resources to survive. Individuals with a trait that gives them a competitive advantage are more likely to reproduce.

In other words, natural selection leads to the predominance of certain traits in a population and the suppression of others. When those traits change over time through many generations in response to changes in environmental conditions, scientists call that process *adaptation*. In the example of beetle color above, the yellow color trait supported successful survival and reproduction in the new environment. Yellow beetles became more common as the red beetles were eaten and became less common. That type of adaptation by natural selection is how the distribution of traits in a population changes.

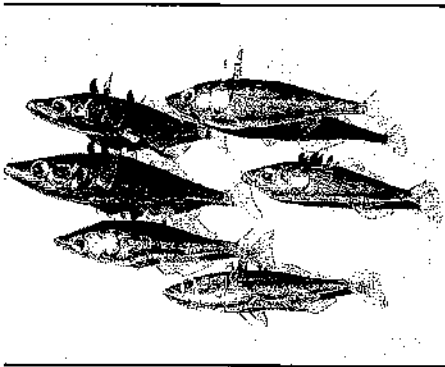
What Do You Think?

How do you respond to environmental changes? What kind of clothing would you need to go sledding on a snowy day? Maybe you only ride your bike during certain times of the year. What if you moved to a much colder part of the world? You would probably need a new set of clothes for the new environment. You would probably have to change some of your daily routines and activities.



All organisms need to adapt to changes in their environment.

Sometimes the environment naturally changes, making one trait more favorable than another. But sometimes humans can trigger a change. Recall that changes in a species' appearance or behavior over generations are adaptations. The mechanism driving these changes is natural selection. Natural selection most often works by taking advantage of genetic variation among individuals in a population. Some individuals survive better in particular environmental conditions than other individuals of the same species. Those better adapted will survive and will be able to produce offspring. They will pass on their traits to the next generation, which improves their offspring's chances of survival. Over time, the characteristics of a whole population change.



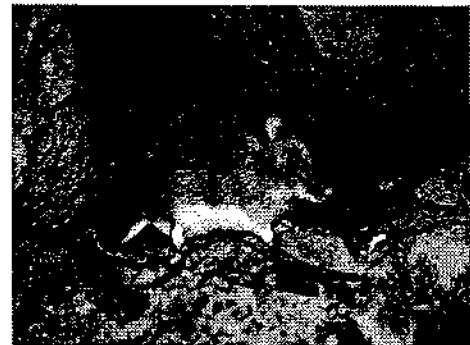
Fossils of stickleback fish show evidence of natural selection.

Stickleback fish have been around for millions of years.

Sticklebacks have spines on their backs to protect them. However, growing spines requires energy and the presence of minerals in the water. Comparing ancient fossils to more recent fossils shows a decrease in the number of spines. Scientists infer that predators were rare in the ancient lakes. Therefore, fish with fewer spines survived to reproduce.

Deer Mice Camouflage

Deer mice are widespread and live in a variety of North American habitats. They are active at night and eat mostly seeds. Predators include snakes, owls, and other raptors. The Sand Hills landform in Nebraska was deposited by glaciers within the last 10,000 years. The soils of the Sand Hills are much lighter than the soils in other parts of the state.



Almost all deer mice living in the Sand Hills are light colored. However, deer mice in the rest of the state are dark colored. The light color allows them to blend in with the Sand Hills soil and be less visible to predators. A small change in the genetic material of deer mice is responsible for the change in color and the successful color adaptation.

Natural Selection

A population of light-colored mice was moved from the Sand Hills to a wooded area with dark soils. What do you think would happen to this population after 10,000 years or longer?



Field mustard adapts to drought.

Field mustard is an annual plant that grows wild in many regions of the world. It has small yellow flowers and is pollinated by insects. Field mustard has to flower and produce seeds to give rise to the next generation. Southern California experienced a severe drought between 2000 and 2004. Plants that flowered earlier reproduced. Those that flowered later died without producing seeds. This led to more early-flowering field mustard plants. This change in population characteristics took only a few generations.

How do you think scientists discovered that the flowering time of the field mustard had changed?

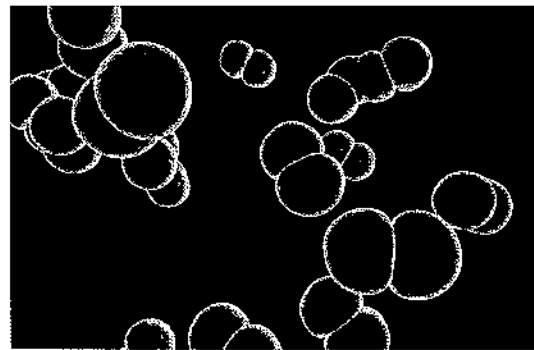
Look Out!

1000 4000 8000 12000 16000 20000 24000 28000 32000 36000 40000 44000 48000 52000 56000 60000 64000 68000 72000 76000 80000 84000 88000 92000 96000 100000

Everyday Life: Adapting to Antibiotics

Natural selection also applies to microorganisms. The discovery of antibiotics in 1928 changed human medicine forever. Antibiotics are medicines that kill bacteria. Patients take antibiotics in order to treat various infections caused by bacteria. However, the overuse and misuse of antibiotics have created a problem: some bacterial populations are becoming resistant to antibiotics. In other words, the antibiotics do not destroy these bacteria as successfully as they once did.

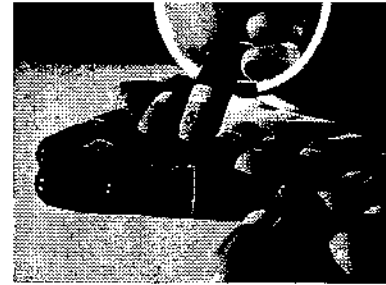
In any given bacterial population, there may be a few individuals that have the trait for antibiotic resistance. These are called resistant bacteria. If a person does not take antibiotics, the bacteria living in that person's body do not experience antibiotics in their environment. So, the few resistant bacteria will not have any advantages over nonresistant bacteria and will not reproduce more than others. This trait for resistance to antibiotics will not be favored and passed to offspring over time. In other words, the bacteria *population* will not adapt to become resistant to antibiotics.



Bacteria reproduce rapidly. Changes in bacterial populations can occur much faster than changes in other populations.

Natural Selection

If a person takes antibiotics, the resistant bacteria will survive and reproduce. The nonresistant bacteria will die. If this process continues, most of the bacteria population will have the trait for antibiotic resistance. If antibiotics are taken rarely, the population will not have time to adapt, and the bacteria will die. The more often antibiotics are taken, the more chances the bacteria have to adapt and develop resistance.






What Do You Think?

People spray pesticides on crops to kill insects that eat and destroy the crops. However, these insects are becoming resistant to the pesticides. Explain how this could happen.

What do you know?

Adaptation by natural selection over several generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common. Those that do not become less common. Thus the distribution of traits in a population changes. Take a look at the table below. The left column lists examples of environmental changes. For each example, describe an adaptation that would help a plant or animal survive. Be creative but accurate; there are many possible answers!

Environmental Change		Sample Adaptation for a Plant	Sample Adaptation for an Animal
Persistent drought			
River changing course			
Air pollution			

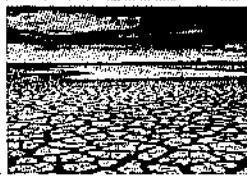

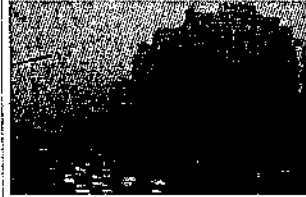
Section: Explain

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The light-colored coat against the dark soils would be easy for predators to spot. The population of light-colored mice might die out. They could reproduce successfully if a dark-colored coat gene showed up in the population.

Scientists probably planted seeds from plants before the drought and seeds from plants after the drought under controlled conditions. They knew the change was genetic when the seeds from after the drought still flowered early.

Some insects had a gene for resisting the pesticide that was passed on to subsequent generations. Successful adaptation by natural selection occurred.

	Environmental Change	Sample Adaptation for a Plant	Sample Adaptation for an Animal
Persistent drought		Water storage, such as waxy cactus leaves; seeds lying dormant until rain occurs	Water storage
River changing course		Growing long root systems; becoming a floater	Changing shelter location to be closer to the river
Air pollution		Growing larger leaves to produce more photosynthesis; growing cells that filter pollutants	Migrating to a new habitat or growing a noise-filtering system