Document E

The Athenian Assembly

The Athenian Assembly met 40 times a year on a hillside called Pnyx, near the Acropolis. The site had excellent acoustics.

All of Athens's 40,000 citizens were eligible to attend, though travel made that difficult. Six thousand were necessary for a quorum on important issues such as ostracism.
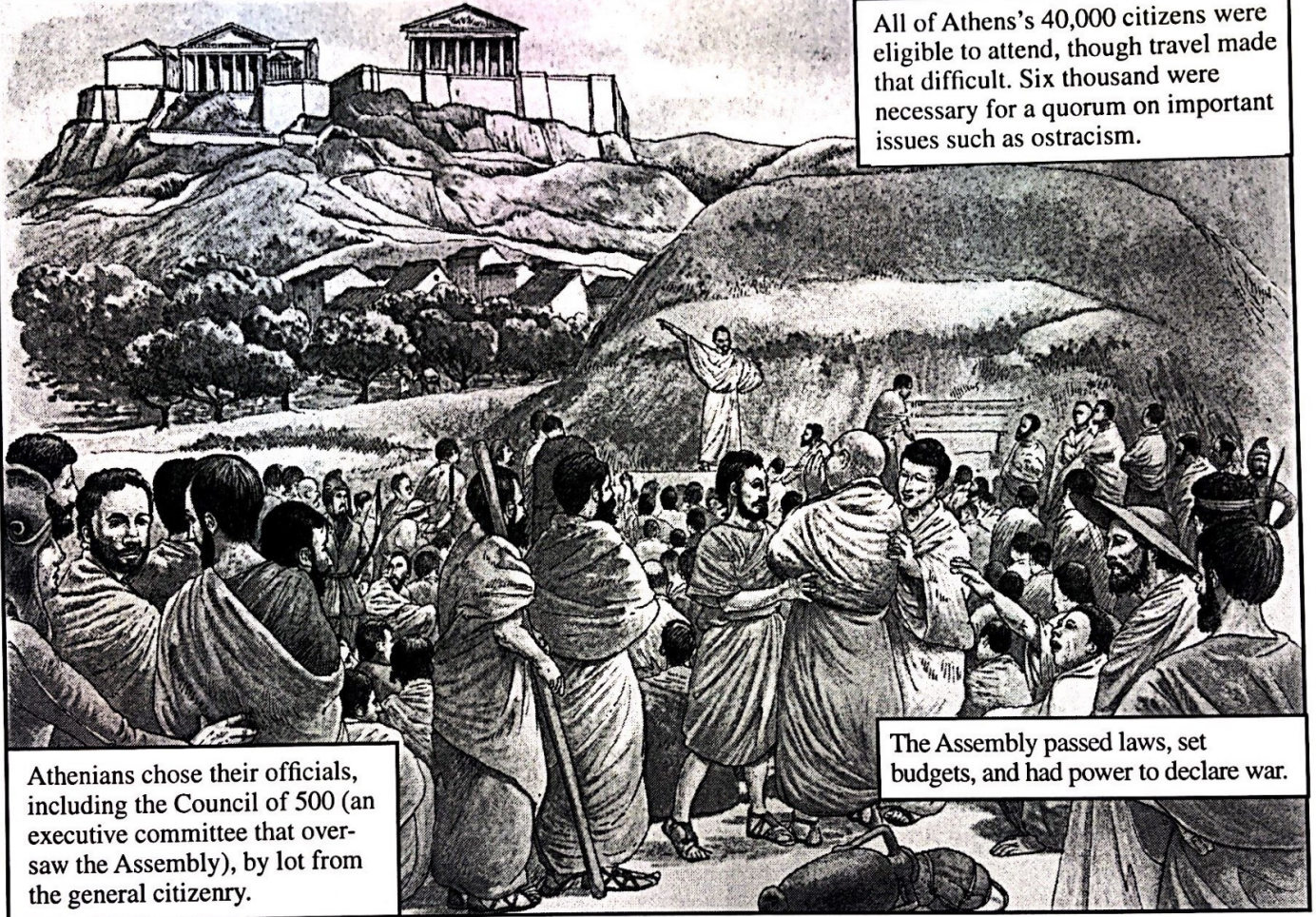
Athenians chose their officials, including the Council of 500 (an executive committee that oversaw the Assembly), by lot from the general citizenry.

The Assembly passed laws, set budgets, and had power to declare war.

Document Analysis

1. What percent of adult male citizens in Athens could vote in the Assembly? What percent were eligible to become members of the smaller Council of 500?

2. Judging by the illustration and the quorum requirement, what generalization can you make about the attendance of Athenian citizens at Assembly meetings?

3. What does it mean that the Council of 500 was chosen "by lot"? Was that a good idea?

4. Assume that the scene in the drawing is reasonably accurate. Does it strengthen or weaken an argument that Athens had a better system of citizenship than Rome? Explain.

Source: A fresco of the Roman Senate painted by Italian artist Cesare Maccari in the 1880s.

The Roman Senate

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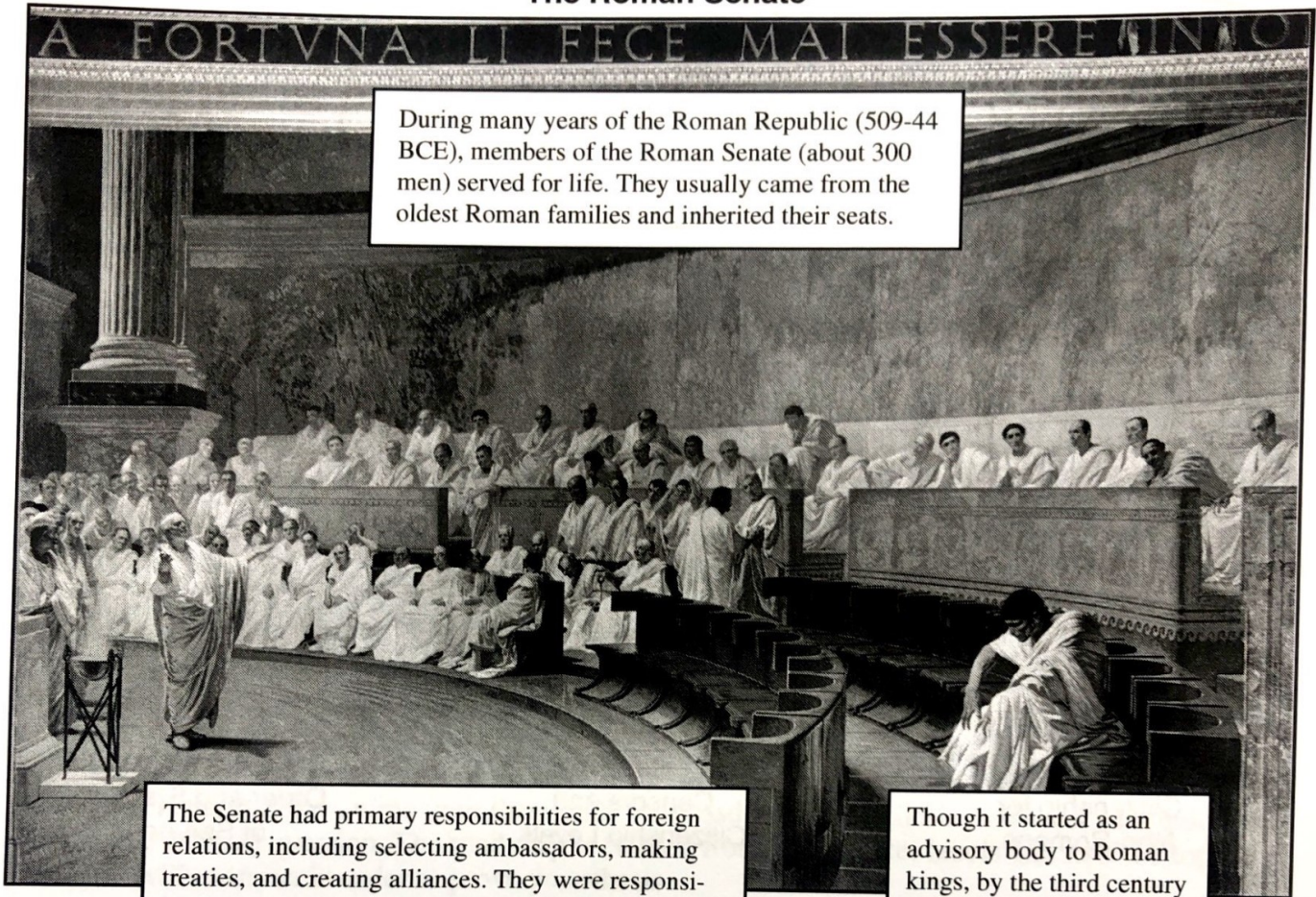
During many years of the Roman Republic (509-44 BCE), members of the Roman Senate (about 300 men) served for life. They usually came from the oldest Roman families and inherited their seats.

The Senate had primary responsibilities for foreign relations, including selecting ambassadors, making treaties, and creating alliances. They were responsible for war policy, and for the control of public lands. The Senate also tried cases of treason and conspiracy.

Though it started as an advisory body to Roman kings, by the third century BCE, the Senate had full governing power in Rome.

Document Analysis

1. How many served in the Roman Senate? How many could serve in the Athenian Assembly? (see Doc E)

2. How long was the usual term of service in the Roman Senate?

3. Compare the social class make-up of the Roman Senate and the Athenian Assembly (Doc E). What does this comparison tell you about the political power of the average citizen in each society?

4. Compare the two images in Documents E and F. In your opinion, what were the strengths and weaknesses of the Athenian Assembly and the Roman Senate? Explain.

Practice 11-5

Choosing the Appropriate Rate

1. A river flows at the rate of 20 feet per minute. What is the rate in seconds per foot?

2. A car travels 250 miles in 5 hours.
   a) What is the rate in miles per hour?
   b) What is the rate in hours per mile?

3. Two stores sell the same item. Which store has the better buy?

Store	Price
A	10 items for $9.00
B	85¢ per item

4. Three stores sell the same item. Which store has the best buy?

Store	Price
A	5 items for $7.00
B	$5.40 for 4 items
C	$1.50 per item

5. A worker earns $12.50 per hour. For how many hours would the worker have to work to earn $300?

6. A factory starts to make a new product. A worker notices that 2 boxes of the new product weigh 7 pounds. The worker moves boxes with a cart that can carry 56 pounds. What is the greatest number of boxes the cart can carry?

7. **Writing** A scientist studies an object that takes 5 minutes to travel one foot. The scientist wants to write this rate in miles per hour.
   a) Explain how the scientist could find the object's rate in miles per hour. Note that 1 mile is 5,280 feet.
   b) What is the rate in miles per hour?

8. **Reasoning** Three shops sell the same type of potting soil. Shop A advertises 17 pounds of the soil for $18.00. Shop B charges $1.15 per pound. At shop C, 0.81 pound of the soil costs $1.00.

   a) Which types of unit rates could you use to find the best buy? Check all that apply.

       ❏ A. pounds per bag   ❏ E. ounces per dollar

       ❏ B. dollars per pound   ❏ F. bags per pound

       ❏ C. ounces per cent   ❏ G. pounds per cent

       ❏ D. cents per ounce   ❏ H. pounds per dollar

   b) Explain which unit rate you would use and why.

   c) Find which shop has the best buy.

9. **Error Analysis** A conveyor belt at a recycling center is 280 feet long. The belt moves 5 feet in 4 seconds. A sorter calculates that it takes 350 seconds for an object to travel the length of the belt. He places his plastic water bottle at the start of the belt so he can tie his shoe. He walks to the end of the belt before 350 seconds pass. His bottle is already in the shredder.

   a) How many seconds does it take the water bottle to travel the length of the belt?

   b) What is the sorter's error?

10. **Mining** A team of miners drills a hole 50.6 meters into a rock formation. The miners drill at the steady rate of 4.6 meters per minute. How long does it take to drill the hole?

11. **Mental Math** One store sells 10 pens for $1.00. Another store sells the same pens for 9¢ each. Which is the better buy?

12. a) **Open-Ended** Describe a situation that uses the unit rate 25 miles per year and the reciprocal unit rate is years per mile.

    b) What is the unit rate in years per mile?

13. A machine makes 13.9 items per minute. How many hours does the machine need to make 3,753 items?

14. **Challenge** Marcus finds three new music download sites. Site A offers 5 songs for $1.00. Site B charges 30¢ per download. For $6.00 a month, site C has unlimited downloads. Normally, Marcus downloads about 40 songs per month. Which site offers Marcus the best deal?

15. **Challenge** An elevator rises 2 feet in 5 seconds. How high does the elevator rise in $\frac{1}{2}$ minute?

1. 3

2. a) 50

   b) 0.02

3. Store B

4. Store B

5. 24 hr

6. 16

7. a) Answers will vary

   b) $\dfrac{1}{440}$

8. a) B, C, D, E, G, H

   b) Answers will vary

   c) Shop A

9. a) 224 seconds

   b) The sorter used the incorrect rate $\dfrac{5 \text{ seconds}}{4 \text{ feet}}$ rather than the rate $\dfrac{4 \text{ seconds}}{5 \text{ feet}}$

10. 11 min

11. $0.09 per pen

12. a) Answers will vary

   b) 0.04 yr/mi

13. 4.5

14. Site C

15. 12 ft

Practice 11-6

Problem Solving

1. Last June, you spent 40 hours at the beach. You also spent 1,260 minutes each week on summer reading. Did you spend more time at the beach or on summer reading last June?

   ❍ A. You spent more time at the beach.

   ❍ B. You spent the same amount of time on each activity.

   ❍ C. You spent more time on summer reading.

2. Three rivers all flow into the same lake. What is the total amount of water they add to the lake each day?

River	Flow Rate
River A	30 gallons per second
River B	2,400 gallons per minute
River C	1,000,000 gallons per day

3. The table shows apple prices.

Apples	Weight and Price
Bushel of Red Delicious	40 pounds for $45
Half-Bushel of Gala	20 pounds for $21
Peck of Granny Smith	10 pounds for $15

   a) Explain how a customer could find which type of apple is the best buy.

   b) Find the total cost if a customer wants to buy 2 bushels of Red Delicious, 3 half-bushels of Gala, and 2 pecks of Granny Smith.

4. You finish 2 homework problems in 15 minutes. Your friend finishes 4 homework problems in $\frac{1}{2}$ hour. Are you and your friend working at the same rate? Explain.

5. Brandon wants to keep track of his monthly spending. Last month, Brandon shopped, bought 3 meals, and saw 3 movies. He claims his spending totaled $99. Is Brandon's claim correct?

Activity	Cost
Meals	$11 per meal
Movies	$8 per movie
Shopping	$80 per month

- ❍ A. Brandon's claim is correct.
- ❍ B. Brandon's claim is incorrect. He did not multiply $11 per meal by 3 meals and $8 per movie by 3 movies.
- ❍ C. Brandon's claim is incorrect. He did not multiply $8 per meal by 3 meals and $11 per movie by 3 movies.
- ❍ D. Brandon's claim is incorrect. He did not divide $80 per month by 30 days in a month.

6. Beach A has 7,100 visitors per day. Beach B has 67,200 visitors every 2 weeks. Which beach has more visitors?
- ❍ A. Beach B has more visitors.
- ❍ B. Beach A has more visitors.
- ❍ C. Both beaches have the same number of visitors.

7. Describe a daily activity that takes you about 30 minutes. Think about other units of time you could use. Then write 30 minutes per day in minutes per week and hours per week.

8. A farmer wants to hire a farmhand for some year-round work. He wants to hire the worker who is able to work the most. Worker A is available for 20 hours per week. Worker B can work 1,300 hours for the year. Worker C can be at the farm 7 hours per day, 5 days a week. Which worker should the farmer choose?
- ❍ A. Worker B
- ❍ B. Worker C
- ❍ C. Worker A

9. Challenge Jon wants to find out how many calories he burns in a week by exercising. He swims 3 times per week, runs 3 miles per day, and bikes 4 hours per week. How many total calories does he burn per week by exercising?

Activity	Calories Burned
Swimming	180 calories per swim
Running	100 calories per mile
Biking	200 calories per hour

10. Challenge On a vacation, Miley spends 2 hours per day at the pool and 180 minutes per week kayaking. Miley gets 8 hours of sleep every night. If Miley is on vacation for 2 weeks, how much time is left over for other activities?
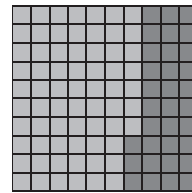
1. C
2. 7,048,000 gal
3. a) Answers will vary
   b) $183
4. Yes
5. B
6. B
7. 210 min/wk
   3.5 hr/wk
8. B
9. 3,440
10. 190 hr

Practice 12-3

Introducing Percents

1. A library tracks the percent of each type of book checked out. The grid shows the percents from last week. What percent of the books were fiction?

Fiction
Nonfiction

2. The workers at a local bakery track the types of muffins they sell. They find that 44% of the muffins are blueberry. Which 100-square grid models this percent?

○ A.

○ C.

○ B.

○ D.
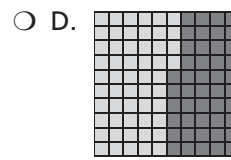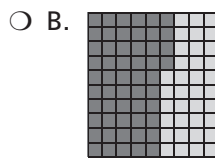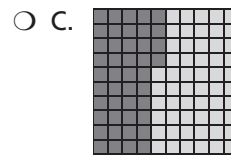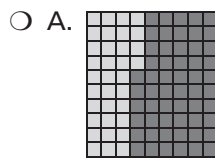
■ Blueberry muffins ■ Other types of muffins

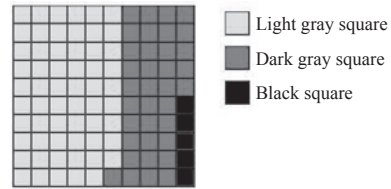3. Complete the table by writing the ratio as a fraction and a percent.

Ratio	Fraction	Percent
4 : 5	$\frac{\qquad}{100}$	_____ %

4. Complete the table by writing the fraction as a ratio and as a percent.

Ratio	Fraction	Percent
_____ : 20	$\frac{35}{100}$	_____ %

5. A basketball player made 63 out of 100 attempted free throws. What percent of free throws was made?

6. Your friend shows you a coin collection. In it, $\frac{45}{50}$ of the coins are quarters. What percent of the coins are quarters?

7. Writing The grid has 100 squares shaded either light gray, dark gray, or black. Each square represents 1%.

Light gray square
Dark gray square
Black square

a) What percent of the grid represents the difference between the percent that is light gray and the percent that is dark gray?

b) Describe a situation that this grid could model.

8. a) Open-Ended A florist wants to use roses, daisies, and tulips in an arrangement. The florist knows that 42% of the customers like roses the best. Also, 35% prefer daisies and 23% favor tulips. Which 100-square grid models these percents?

○ A.

○ C.

○ B.

○ D.
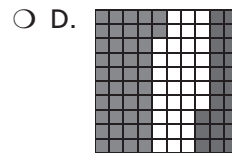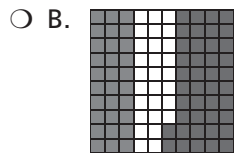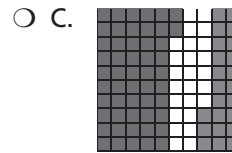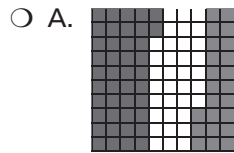
b) Draw a second 100-square grid to creatively model these percents. Use graph paper if needed.

9. a) Reasoning Complete the table by writing each ratio as a fraction and as a percent.

Ratio	Fraction	Percent
4 : 20	$\dfrac{\quad}{100}$	_____ %
25 : 50	$\dfrac{\quad}{100}$	_____ %

b) Can you say that one of the two ratios is "greater" than the other? Explain your reasoning.

10. a) Error Analysis Ryder writes $\frac{11}{20}$ as the ratio 11 : 20. He incorrectly finds the equivalent percent to be 11%. What percent is equivalent to $\frac{11}{20}$?

b) What is Ryder's error?

○ A. He did not write $\frac{11}{20}$ as an equivalent fraction with denominator 100.

○ B. He wrote $\frac{11}{20}$ as an equivalent fraction with denominator 1,000.

○ C. He did not write $\frac{20}{11}$ as an equivalent fraction with denominator 100.

○ D. He wrote $\frac{20}{11}$ as an equivalent fraction with denominator 1,000.

11. **Estimation** A movie studio took a poll after showings of a new movie. The studio found that 4 out of every 21 people did not like the movie. About what percentage of the people did not like the movie?

12. According to a survey of workers, $\frac{2}{20}$ of them walk to work, $\frac{1}{20}$ bike, $\frac{4}{20}$ carpool, and $\frac{13}{20}$ drive alone. What percent of workers walk or bike to work?

13. Complete the table by writing the fraction as a ratio and as a percent.

Ratio	Fraction	Percent
_____ : 60	$\frac{90}{300}$	_____ %

14. **Challenge** At a grocery store, 68 out of every 80 customers use a shopping cart. What percent of the customers use a shopping cart?

15. **Challenge** In a store, $\frac{9}{200}$ of the shirts are orange and $\frac{69}{600}$ are pink. What percent of the shirts are not orange or pink?

Practice 12-3: *Introducing Percents*

1. 67

2. C

3. 80

80

4. 7

35

5. 63%

6. 90%

7. a) 23%

b) Answers will vary

8. a) A

b) Answers will vary

9. a) 20

20

50

50

b) Answers will vary

10. a) 55%

b) A

11. 20%

12. 15%

13. 18

30

14. 85%

**15.** 84%

Practice 12-4

Using Percents

1. What is 20% of 25?

2. On a local sports team, 20% of 50 players are left-handed. How many left-handed players are there?

3. 90% of what number is 45?

4. A restaurant wants to study how well its salads sell. The circle graph shows the sales over the past few days. If 5 of the salads sold were Caesar salads, how many total salads did the restaurant sell?

Salads Sold

☐ Caesar 20%
☐ Garden 56%
☐ Cobb 24%
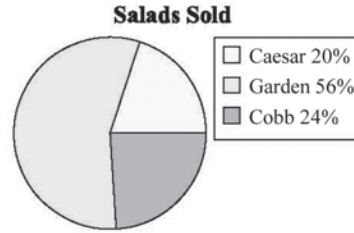
5. 44% of what number is 33?

6. At a school, 122 students play at least one sport. This is 40% of the students at the school. How many students are at the school?

7. **Writing** A school wants to add a new sports team. The school sent out surveys asking for the students' favorite sport. Nineteen students named lacrosse. Others named volleyball or swimming. Explain how to use the circle graph and ratios to find the number of students surveyed. Then find this number.

Favorite Sport

☐ Vollevball 42%
☐ Lacrosse 38%
☐ Swimming 20%
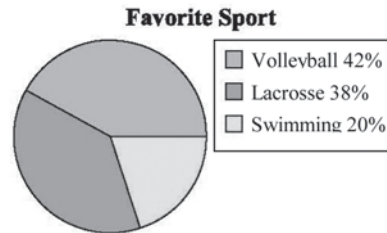
8. **Reasoning** You know that 26% of a number, x, is 39. You also know that 53% of a number, y, is 91.
   a) What are the values of x and y?

   b) Which number is greater?

   ○ A. y   ○ B. x

   c) Explain how you can find whether x or y is greater without finding their values.

9. **Error Analysis** Krysti is ordering T-shirts for 20 classmates. She knows that 75% of the classmates want the small size. In her order, Krysti mistakenly asked for 25 small shirts.

a) How may small T-shirts should she have ordered?

b) What was Krysti's error?
   ○ A. Krysti multiplied the numerator of the percent ratio by 3 instead of 5.
   ○ B. Krysti divided the numerator of the percent ratio by 3 instead of 5.
   ○ C. Krysti divided the numerator of the percent ratio by 5 instead of 3.
   ○ D. Krysti multiplied the numerator of the percent ratio by 5 instead of 3.

10. **Snowstorms** During a 5-year period, 56% of snowstorms in a certain city caused power outages. Thirty-three of the snowstorms did not cause power outages. Find the total number of snowstorms in this city over the 5-year period.

11. **Estimation** Connor and Maria are doing yard work for a neighbor. They make a total of $404.88. Since Maria works more hours than Connor, Maria gets 59% of the money. About how much (in whole dollars) does Maria make?

12. **Mental Math** Zach invests $5 in the stock market at the beginning of the week. He decides to invest an additional $15 at the end of the week. He loses 50% of his total investment. How much money does Zach lose?

13. At one store, Matt saved $20 with a coupon for 80% off his total purchase. At another store, the $28 he spent on books is 56% of his total bill. How much did Matt spend in all at the two stores?

14. **Challenge** An office is ordering pizza for two groups. Of the 25 workers in Accounting, 72% want pepperoni. The others in Accounting want eggplant. Of the 50 people in Sales, 52% want eggplant. The others in Sales want pepperoni. In all, how many workers want eggplant pizza?

15. **Challenge** A school is planning a field trip to a theme park. A ticket to the park costs $21. For a group of 50 or more, there is a 12% discount. The school saved $819 with the discount. How many tickets did the school buy?

1. 5

2. 10

3. 50

4. 25

5. 75

6. 305

7. 50

8. a) $x = 150$

   $y = 175$

   b) A

   c) Answers will vary

9. a) 15

   b) B

10. 75

11. $240

12. $10

13. $55

14. 33

15. 325

Earth is a "living planet" and all life depends on one another to thrive, report says

By Associated Press, adapted by Newsela staff on 05.13.19

Word Count **820**

Level **1020L**

Burchell's zebras and Masai giraffe seen in Masai Mara National Reserve, Kenya. Photo by: Anup Shah/Getty Images

You might not be aware of endangered animals or plants, but the globe's biodiversity crisis threatens all of humanity. The threats come in numerous unseen or unrecognized ways, scientists say.

Biodiversity refers to the variety of living things in an environment, whether it's a forest, a stream or an ocean.

1 Million Species Threatened

A big report released on May 6 warned that nature is in trouble and estimated that 1 million species are threatened with extinction if nothing is done. It said the worldwide deterioration of nature is everyone's problem. The report was done by the United Nations, an organization of countries that work together to promote international cooperation.

"Nature is essential for human existence and good quality of life," the report said.

Food, energy, medicine, water, protection from storms and floods and slowing climate change are some of the 18 ways nature helps keep people alive, the report said. It concluded that 14 of those are on long-term declining trends.

"You destroy nature and it's going to bite you back," said Stuart Pimm, an ecology professor at Duke University in North Carolina. He pointed to how difficult it has been for China to come back from decades of forest loss. The country has replanted trees in recent years.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services report points to more than 2,500 wars and other conflicts over fossil fuels, water, food and land. It illustrates how important nature is to people.

Diversity Of The Living

"Protecting biodiversity means protecting mankind because we human beings depend fundamentally on the diversity of the living," said Audrey Azoulay. She is the UNESCO Director-General. She announced the report in Paris, France. UNESCO is short for the United Nations Educational, Scientific and Cultural Organization.

Here are four ways humanity depends on nature, based on information from the report and scientists.

Nearly all food comes directly from nature, said report co-author Kai Chan. He is an environmental scientist at the University of British Columbia in Canada. Even though overall the world is growing more food, pressure on crops from pollution, habitat changes and other forces has made prices soar, he said. Problems have even caused food riots in Latin America, he said.

Bees and other pollinators across the globe are in decline. Almost 75 percent of the world's food crops, including fruits, vegetables, coffee and cocoa, require pollination. The report said pollinator loss could cost the world $285 billion to $577 billion a year.

Nature Underpins Human Health

About 70 percent of the drugs used to fight cancer are natural or are products inspired by nature, the report said. About 4 billion people rely primarily on natural medicines. There are around 7.5 billion people in the world.

Thomas Lovejoy is a scientist at George Mason University in Virginia. He points to a single microbe, a tiny living thing in Yellowstone National Park's hot springs. The park is in Idaho, Montana and Wyoming. Pieces of the microbe's genetic code are the key to a scientific technique called polymerase chain reaction. It is used for medical, genetic and other tests and a lot of modern biotechnology.

"Nature underpins all dimensions of human health," the report said.

Vulnerability To Climate Change And Weather

Without forests and oceans, Earth would be warming more and faster, scientists said.

The world's forests and oceans take nearly 6.2 billion tons of heat-trapping carbon dioxide out of the air each year, the report said. That's about 60 percent of what humans produce through burning fossil fuels.

Climate change and biodiversity loss are equally huge environmental problems, report chairman Robert Watson said. They make each other worse, he said.

People can build expensive sea walls to fight the rise of oceans from climate change. The same protection can be offered by coastal mangroves, the report said.

They are trees or shrubs that grow in coastal swamps and can form dense thickets. However, mangroves are in trouble, Watson said.

"They often act as a nursery for fisheries basically," Watson said. "And they clearly help to protect land from severe weather events and storm surges from the sea."

The problem, he said, is that many mangrove systems have been converted to shrimp farms. That leaves the land in more danger from storms and without biodiversity.

Humans Are Not Independent From Nature

People may think of biodiversity or endangered species as something removed from their daily lives. However, those people don't understand that Earth works as a "living planet" with many parts dependent on each other, Lovejoy said.

"We're here in Paris. Can you experience Paris without nature?" asked report co-chairman Eduardo Brondizio of Indiana University. "Every place we turn here we see biodiversity exposed to us in the streets. When we open the tap here, we drink excellent water. When we look at the parks, when we look at the atmosphere here in the city, it's all about nature."

Quiz

1   The sentence below from the section "1 Million Species Threatened" helps prove the claim that humans need nature.

> *"Nature is essential for human existence and good quality of life," the report said.*

Which selection from the section provides further support for the claim?

(A)   A big report released on May 6 warned that nature is in trouble and estimated that 1 million species are threatened with extinction if nothing is done.

(B)   Food, energy, medicine, water, protection from storms and floods and slowing climate change are some of the 18 ways nature helps keep people alive, the report said.

(C)   He pointed to how difficult it has been for China to come back from decades of forest loss. The country has replanted trees in recent years.

(D)   The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services report points to more than 2,500 wars and other conflicts over fossil fuels, water, food and land.

2   Select the paragraph from the section "Vulnerability To Climate Change And Weather" that explains why mangroves are experiencing decline.

(A)   People can build expensive sea walls to fight the rise of oceans from climate change. The same protection can be offered by coastal mangroves, the report said.

(B)   They are trees or shrubs that grow in coastal swamps and can form dense thickets. However, mangroves are in trouble, Watson said.

(C)   "They often act as a nursery for fisheries basically," Watson said. "And they clearly help to protect land from severe weather events and storm surges from the sea."

(D)   The problem, he said, is that many mangrove systems have been converted to shrimp farms. That leaves the land in more danger from storms and without biodiversity.

3   Read the selection from the section "Nature Underpins Human Health."

> *"Nature underpins all dimensions of human health," the report said.*

Which two words would BEST replace "underpins" and "dimensions" in the selection above?

(A)   supports; aspects

(B)   questions; parts

(C)   weakens; types

(D)   creates; measurements

4   Read the paragraph from the section "Humans Are Not Independent From Nature."

> *People may think of biodiversity or endangered species as something removed from their daily lives. However, those people don't understand that Earth works as a "living planet" with many parts dependent on each other, Lovejoy said.*

Which word from the paragraph shows a detached or indifferent tone?

(A)   endangered

(B)   removed

(C)   understand

(D)   dependent

Earth's animal and plant diversity is going away, say U.N. reports

By Associated Press, adapted by Newsela staff on 04.02.18
Word Count **942**
Level **1050L**

Verreaux's sifaka photographed in the Berenty Reserve of Madagascar. A number of factors, including climate change, development and population growth, are threatening the world's most biodiverse places, such as Madagascar, a new U.N. report shows. Photo by: Shannon Wild/VW Pics/UIG via Getty Images

WASHINGTON, D.C. — Four new reports show that Earth is losing plants, animals and clean water at a dramatic rate.

The reports provide the most complete look at the state of biodiversity, which is the variety of living things in a given environment, whether that's a forest, a stream or an ocean. In this case, the reports looked at entire regions of the world.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) assesses the state of biodiversity around the world. IPBES is run by the United Nations, a group made up of representatives from almost every country. The United Nations helps countries work together on everything from ending wars to protecting the environment. Any country that belongs to the United Nations can also join IPBES.

Member Countries Contribute To Reports

Hundreds of scientists from around the world contributed to these new reports. The reports were approved by the 129 countries that are members to IPBES.

The scientists met in Medellín, Colombia, from Saturday, March 17, 2018, to Saturday, March 24, 2018, where their reports were issued. The reports look at how well animals and plants are doing in the Americas, Europe, Central Asia, Africa and the Asia-Pacific area. Their conclusion after three years of study was that most places are not doing well when it comes to biodiversity.

Robert Watson, a prominent scientist, is the IPBES chairman. He said the study was about more than just critters. It is about keeping Earth livable for humans, considering we rely on biodiversity for food, clean water and public health.

"This is undermining well-being across the planet, threatening us long-term on food and water," Watson said in an interview.

Severe Declines

Scientists pointed to last week's death of the last male northern white rhino in Africa as one example of a species being on the brink of extinction. There have also been severe declines in other high-profile animals, like elephants, tigers and pangolins, which look sort of like a scaly anteater. Scientists said lesser-known creatures are struggling as well.

The loss of biodiversity around the world is a side effect of the world getting wealthier and more crowded with people, Watson said. Humans need more food, more clean water, more energy and more land to sustain the ever-growing population. Trying to make room for a growing population has affected biodiversity, Watson said.

All at once, crucial habitats are being affected by a number of factors. Non-native species have invaded many ecosystems. Chemicals have hurt plants and animals. Meanwhile, wetlands and mangroves that clean up pollution are disappearing and the world's waters are overfished, he said.

Borrowing From The Future

Moreover, climate change is getting worse. Pollutants such as greenhouse gas emissions continue to accumulate in the atmosphere and contribute to global warming. Global warming will soon hurt biodiversity as much as all the other problems combined, Watson said.

Jake Rice, Canada's chief government scientist for fisheries and oceans, was in charge of the Americas report. He thinks our actions now will affect the next generation. "We keep making choices to borrow from the future to live well today," he said.

Duke University conservationist Stuart Pimm, who wasn't part of the study team, said the reports make sense and are based on well-established scientific data: "Are things pretty dire? Yes."

Below are some facts from the regional reports.

The Americas

If current trends continue, by the year 2050, the Americas will have 15 percent fewer plants and animals than today. That means there will be 40 percent fewer plants and animals in the Americas than in the early 1700s.

Nearly a quarter of the species that were fully measured in the study are now threatened, Rice said. A threatened species is one that is losing population and is at risk of becoming endangered. Endangered animals are those at risk of becoming extinct, or dying out completely.

Overall, nearly two-thirds of all species are declining and more than one-fifth are "decreasing strongly," Rice said.

All Major Ecosystems Threatened

Sonali Seneratna Sellamuttu was in charge of the Asia report. She said "all major ecosystems are threatened in the region." If trends continue, she said, there will be no fish left for large fishing businesses by 2048. Around that same time, the region will lose 45 percent of its biodiversity. Asia will also lose about 90 percent of its key coral species. Corals are important because they protect shoreline communities from waves and storms and provide habitat for many sea creatures.

Europe Doing The Best

This is the region that Watson said may be doing the best, and still, 28 percent of the species that only live in Europe are now threatened. In the last decade, 42 percent of the land-based plant and animal species have declined. Wetlands have also been cut in half since 1970, according to Mark Rounsevell, who helped oversee the Europe report.

Africa

Africa could lose half of some bird and mammal species by 2100. More than 60 percent of the continent's people depend on natural resources for their livelihoods, said report co-chair Luthando Dziba of South African National Parks. That makes maintaining biodiversity especially important for the continent.

Already, more than 20 percent of Africa's species are threatened, endangered or extinct.

While scientists said governments and societies need to change their ways, individuals can also help. People can use less energy, less water and eat less red meat, Watson said. The production of red meat is a major factor in global greenhouse gas emissions, which is causing climate change.

Watson says that although the reports are troubling, there is still time to make a difference.

Quiz

1   Read the paragraph from the section "Severe Declines."

> *All at once, crucial habitats are being affected by a number of factors. Non-native species have invaded many ecosystems. Chemicals have hurt plants and animals. Meanwhile, wetlands and mangroves that clean up pollution are disappearing and the world's waters are overfished, he said.*

What conclusion is BEST supported by the paragraph?

(A)   The main way that humans are affecting ecosystems is through over-hunting and over-fishing.

(B)   If wetlands and mangroves had not disappeared, there would be no threat to the ecosystems.

(C)   Much of the damage done to the world's biodiversity cannot be directly connected to human activity.

(D)   Ecosystems are under attack from a variety of sources, and it will take a wide range of actions to help them.

2   Which sentence from the article BEST supports the idea that maintaining biodiversity is not only important to plants and animals?

(A)   Four new reports show that Earth is losing plants, animals and clean water at a dramatic rate.

(B)   It is about keeping Earth livable for humans, considering we rely on biodiversity for food, clean water and public health.

(C)   The loss of biodiversity around the world is a side effect of the world getting wealthier and more crowded with people, Watson said.

(D)   Pollutants such as greenhouse gas emissions continue to accumulate in the atmosphere and contribute to global warming.

3   According to the article, what is the relationship between climate change and biodiversity?

(A)   Climate change has gotten so bad that it is the main reason why biodiversity is currently in such a bad state.

(B)   Climate change used to be the main reason for decreasing biodiversity, but soon it will be less important than other factors.

(C)   Climate change is predicted to increase and will soon harm biodiversity more than all the other factors that are hurting it today.

(D)   Climate change is a debated topic among scientists who study biodiversity decline, with some saying it is the most important factor and others disagreeing.

4   Which answer choice accurately characterizes Robert Watson's reaction to the report on biodiversity?

(A)   He feels worried that the threat to biodiversity will make it hard for humans to survive in the future, but feels it is still possible to change.

(B)   He feels doubtful that there is anything that can be done to help protect the world's biodiversity, but he knows humans need hope.

(C)   He feels angry with the way that humans are not helping endangered, high-profile animals like the northern white rhino in Africa.

(D)   He feels frustrated because he knows that humans need food, water and energy, but doesn't want to cause any more harm to ecosystems.