

# Christina School District Assignment Board

Student's First & Last Name \_\_\_\_\_ Student ID/Lunch # \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

Grade Level: 9th

Week of May 18<sup>th</sup>, 2020

	Day 1	Day 2	Day 3	Day 4	Day 5
<b>ELA</b>	<p>This week's focus is to build upon your prior knowledge, giving you experience in reading real-world informational texts, note-taking, critical thinking, and metacognitive skills.</p> <p>-----</p> <p>Evaluate the Political Cartoons And answer the questions.</p>	<p>Read the article <b>"New York City Board of Health..."</b> Follow the instructions on the article.</p>	<p>Answer the <b>Digging Deep Questions.</b></p>	<p><b>Complete the Analyzing Writer's Craft</b></p>	<p>Write a 1-2 paragraph response to the article. Utilize 1-2 of the writer's techniques in your response <b>OR</b> Choose one of the cartoons from Day 1 and explain in a paragraph how it connects to the main idea of the article.</p>
<b>Math (IM1/ Algebra 1)</b>	<p><i>Counting in Tree Graphs/Properties of Exponents</i></p> <p><i>Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read Concept Summary: Rational Exponents and Properties of Exponents to complete Exponential Functions Worksheet 1</i></p>	<p><i>Complete Properties of Exponents Worksheet 2 # 1-12. (attached) Refer to Concept Summary if needed.</i></p>	<p><i>Read pages 15-16. (attached) Use the examples as a guide. Complete p. 16 #1-15. (attached)</i></p>	<p>Complete p. 16 #16-26. Use the examples as a guide. (attached)</p>	<p><i>Complete Properties of Exponents Worksheet 3 # 1-12. (attached) Refer to Concept Summary if needed.</i></p>

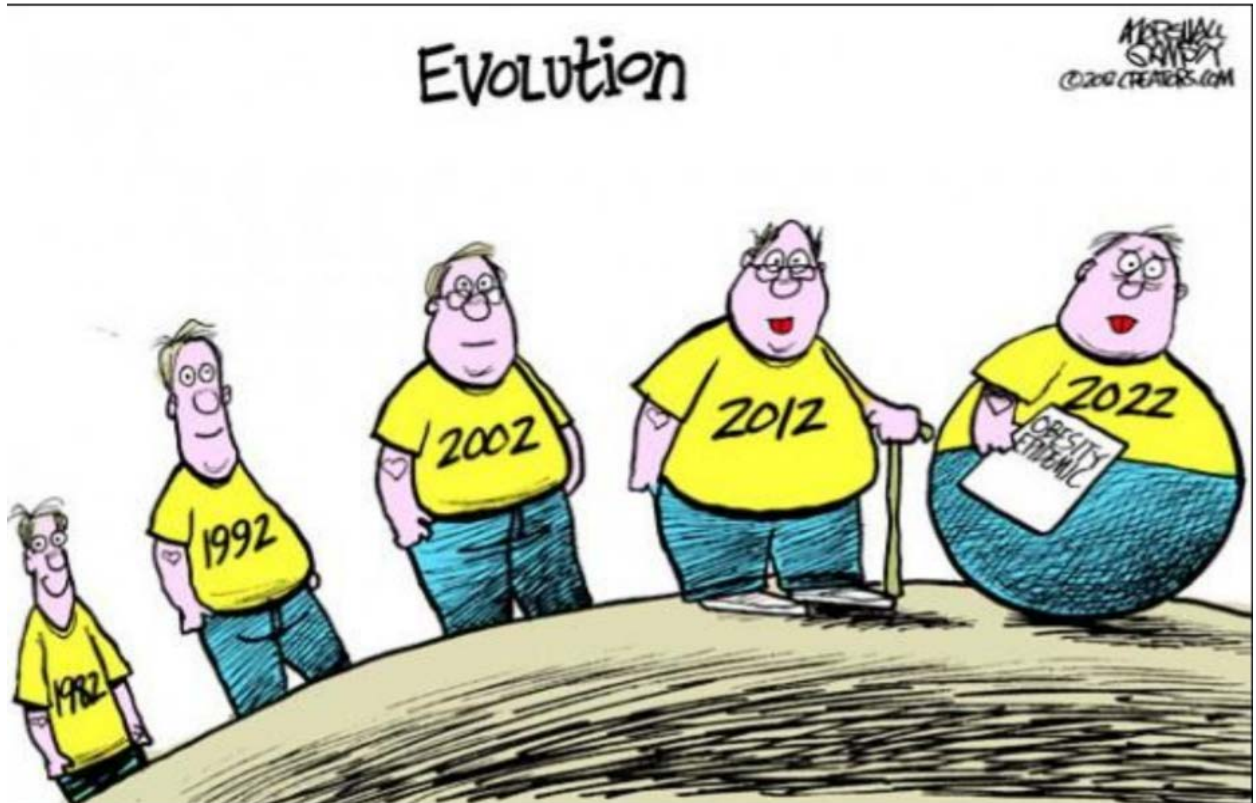
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	# 1-3. (attached)				
<b>Science</b>	<b>Phenomenon: Oil Spills:</b> Reflect and Respond: How do oil spills impact ecosystems? Include as many specific details as you can think of. Make sure to include the following in your writing: My thoughts and responses: Questions I have: Thoughts I would want to discuss further:	<b>Recovery Uneven from Exxon Valdez Oil Spill (part 1):</b> Read article. In YELLOW, highlight or underline details about how the Exxon Valdez oil spill has impacted humans. In GREEN, highlight or underline details about how the Exxon Valdez oil spill has impacted animals. In RED, highlight or underline information about different opinions regarding the Exxon Valdez oil spill and its impact.	<b>Recovery Uneven from Exxon Valdez Oil Spill (part 2):</b> Reread article as necessary. Make a claim that answers the following: Should Exxon have to pay more money to support clean-up efforts in Prince William Sound? Support your claim with evidence from the article. Then, explain why the evidence supports your claim. <b>[SAVE article]</b>	<b>On 30th Anniversary, Lessons Learned from the Exxon Valdez Oil Spill (part 1):</b> Read article. In YELLOW, highlight or underline details about how the Exxon Valdez oil spill has impacted humans. In GREEN, highlight or underline details about how the Exxon Valdez oil spill has impacted animals. In RED, highlight or underline information about different opinions regarding the Exxon Valdez oil spill and its impact.	<b>On 30th Anniversary, Lessons Learned from the Exxon Valdez Oil Spill (part 2):</b> Reread article as necessary. Write your best answers to the following: How can people help develop new technology that would help prevent oil spills or keep them from damaging the environment? What details from the text help you support your claim? Think about what you read about the environment, then explain how the details support your claim. <b>[SAVE article]</b>
<b>Social Studies</b>	Complete Activity 2, Photograph 5 from the document titled, "The Unique Nature of Places - Part 1"	Complete Activity 2, Photograph 6 from the document titled, "The Unique Nature of Places - Part 1"	Complete Activity 3 from the document titled, "The Unique Nature of Places - Part 1"	Complete Activity 4 from the document titled, "The Unique Nature of Places - Part 1"	Complete Activity 1 from the document titled, "The Unique Nature of Places - PART 2" (If this document, Part 2, is not included in this week (7), do Activity 1 (in addition to Activity 2, Tehran) on Day 1 for Week 8.

Evaluate this Cartoons:

1



2



	What does this cartoon mean?	What does it mean for Americans? Explain in detail – based on your evaluation of all parts of the cartoon:
Cartoon 1		
Cartoon 2		

1. Explain obesity as you understand it to mean.

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2. Based upon your experiences at school, home, work, and on television, do you believe that obesity is a problem for Americans?

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### Instructions

**Step 1:** Number the paragraphs

**Step 2:** **Skim** the article using these symbols as you read:

(+) agree, (-) disagree, (\*) important, (!) surprising, (?) wondering

**Step 3:** Read the article now carefully and make notes in the margin. Try to mark each paragraph with an important note, idea or question.

**Step 4:** Answer the following.

1. What surprised you as you read?
2. What did the author think you already knew?
3. What challenged, changed or confirmed what you knew?

**Step 5:** Write a 1-2 sentence summary of the article.

## **The New York City Board of Health approves a plan to institute a city-wide restriction on sugary drinks over 16 ounces — the latest move to improve the population's health**

On Thursday, the New York City Board of Health approved Mayor Bloomberg's controversial soda ban prohibiting fast-food restaurants, convenience stores, movie theaters, and food carts from selling sugar-filled drinks in containers larger than 16 ounces. The limit, however, does not apply to grocery stores, or to fruit juices and dairy based beverages like milkshakes. While some 60 percent of New Yorkers oppose the ban, which won't take effect until March 2013, Bloomberg was pleased, tweeting that "[six] months from today, our city will be an even healthier place." But is imposing healthier restrictions really the way to go? Or does it turn New York into a nanny state?

**It's a step in the right direction:** Obesity kills 6,000 New Yorkers every year, more than any other health issue besides smoking, says Thomas Farley at the New York Daily News. Bloomberg's soda ban is "bold" but "completely appropriate": Sugary drinks are a key factor in the epidemic because they "deliver a load of sugar that has serious metabolic effects without making you feel full." When obesity kills, it leaves children without parents; when it doesn't, it taxes our healthcare system and leaves sufferers incapable of working. A portion cap won't fix the obesity problem, but at least it's a start.

**It's over the top:** "No one likes to be told what to do," says Ray Fisman at Slate. "And if the city is banning super-sized soda, some fear that it won't be long before the government will be forcing broccoli down our gullets." As an alternative, it's time to reconsider so-called sin taxes on unhealthy foods, which recent studies have shown to be effective. Even a "modest price difference between regular and diet soda" could prove helpful in convincing poor customers to switch drinks "rather than continuing to buy soda they can't afford." Just look at how effective New York City's cigarette tax has been in helping people drop the habit.

**But setting limits has a proven track record:** Bloomberg's past food and health regulations have worked, says Nadia Arumugam at Forbes. In 2005, the mayor instituted a ban of all trans-fats from all restaurants in the city limits. Just two years later, a New York City Health Department study found that the ban helped curb incidence of heart disease. A 2008 ruling requiring restaurants to post calorie counts has made similar headway: A study of Starbucks outlets in New York showed that customers bought 6 percent fewer calories once the new menus rolled out. "Setting limits, and implementing bans are not infringing on personal freedom, but helpful ways of making it easier for people to simply say 'No.'"

Digging Deep- answers may be in phrases

1. Where is this ban taking place?

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2. Who had the idea for the ban?

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3. What is banned?

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What is not banned?

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4. Choose a word/line/passage from the article and respond to it.

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5. Explain the problem that the Soda Ban is trying to fix. Also, explain why rising obesity and an unhealthy population might, or might not, be a problem.

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6. The opening paragraph asked is the ban “turns New York into a nanny state?” – Now that you have read the article, what do you think the author means by “nanny state”?

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7. Do you agree or disagree that government should be able to ban products that they think are unhealthy? Why or why not? You need at least three reasons or examples to support your answer.

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### Analyzing Author's Craft

Re-read the article a final time looking specifically for writer's craft.

Make notes about the kinds of ideas covered in the text, the type of evidence the writer uses to support his ideas, how the piece is organized and presented, and how the writer uses language/words to add layers of meaning.

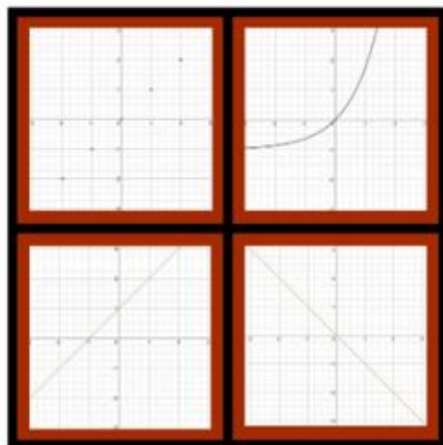
After you identify some of the techniques choose one of focus.

- Quote the example from the text.
- Identify where in the text the author uses the technique.
- How does the use of this technique support the main idea and impact the reader?
- Explain in 1- 2 paragraphs.

## IM1/Algebra 1 – Week of May 18<sup>th</sup>

### Counting in Tree Graphs/Properties of Exponents

Which One Doesn't Belong? Why?



<div> <div>CONCEPT SUMMARY</div> <div>Rational Exponents and Properties of Exponents</div> </div>			
<div> <div>WORDS</div> <div>           If the <math>n</math>th root of <math>a</math> is a real number and <math>m</math> is an integer, then           <math display="block">a^{\frac{1}{n}} = \sqrt[n]{a}</math> <math display="block">a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m</math> </div> </div>			
<div> <div>ALGEBRA</div> <div>           Power of a Power  <math>(a^m)^n = a^{mn}</math> </div> </div>	<div> <div>Power of a Product</div> <div> <math>(ab)^m = a^m \cdot b^m</math> </div> </div>	<div> <div>Product of Powers</div> <div> <math>a^m \cdot a^n = a^{m+n}</math> </div> </div>	<div> <div>Quotient of Powers</div> <div> <math>\frac{a^m}{a^n} = a^{m-n}, a \neq 0</math> </div> </div>
<div> <div>NUMBERS</div> <div> <math>(256^{\frac{1}{4}})^{\frac{1}{2}} = 256^{\frac{1}{4} + \frac{1}{2}}</math>  <math>= 256^{\frac{3}{4}}</math>  <math>= 2</math> </div> </div>	<div> <div> <math>(4 \times 9)^{\frac{1}{2}} = 4^{\frac{1}{2}} \cdot 9^{\frac{1}{2}}</math>  <math>= 2 \cdot 3</math>  <math>= 6</math> </div> </div>	<div> <div> <math>16^{\frac{1}{4}} \times 16^{\frac{1}{4}} = 16^{\frac{1}{4} + \frac{1}{4}}</math>  <math>= 16^{\frac{2}{4}}</math>  <math>= 16^{\frac{1}{2}}</math>  <math>= 4</math> </div> </div>	<div> <div> <math>\frac{8^{\frac{2}{3}}}{8^{\frac{1}{3}}} = 8^{\frac{2}{3} - \frac{1}{3}}</math>  <math>= 8^{\frac{1}{3}}</math>  <math>= 2</math> </div> </div>



# Properties of Exponents Worksheet 1

1. Each of the solutions shown uses a different property of exponents. Draw a line from each property to the solution that uses it.

$$\begin{array}{llll}
 8^{\frac{1}{2}} \times 8^{\frac{1}{2}} = 8^{\frac{1}{2} + \frac{1}{2}} & \frac{27^{\frac{2}{3}}}{27^{\frac{1}{3}}} = 27^{\frac{2}{3} - \frac{1}{3}} & (16 \times 25)^{\frac{1}{2}} = 16^{\frac{1}{2}} \times 25^{\frac{1}{2}} & (9^{\frac{1}{2}})^6 = 9^{\frac{1}{2} \times 6} \\
 = 8^{\frac{2}{2}} & = 27^{\frac{1}{3}} & = 4 \times 5 & = 9^2 \\
 = 4 & = 3 & = 20 & = 81
 \end{array}$$

Power of  
a Power

Power of  
a Product

Product  
of Powers

Quotient  
of Powers

2. Rob incorrectly simplified the radical expression. Find and correct his error.

$$\begin{aligned}
 \sqrt[3]{64^2} &= 64^{\frac{2}{3}} \\
 &= (64^{\frac{1}{3}})^3 \\
 &= 8^3 \\
 &= 512
 \end{aligned}$$

3. Complete the steps for solving this equation. Write numbers, variables, or expressions in the blanks.

$$81^{x+6} = 243^{2x+5}$$

$$(3^4)^{x+6} = (3^5)^{2x+5}$$

Write both expressions with a base of 3.

$$3^{4(x+6)} = 3^{\underline{\hspace{2cm}}}$$

Use the Power of a Power Property.

$$4(x+6) = \underline{\hspace{2cm}}$$

Write an equation for the exponents.

$$4x + \underline{\hspace{2cm}} = 10x + \underline{\hspace{2cm}}$$

Use the Distributive Property.

$$\underline{\hspace{2cm}} = 6x$$

$$\underline{\hspace{2cm}} = x$$

The solution is  $\underline{\hspace{2cm}}$ .

# Properties of Exponents Worksheet 2

Write each radical using a rational exponent.

1.  $\sqrt[4]{7}$

2.  $\sqrt[9]{10^5}$

3.  $\sqrt{a^{-3}}$

4.  $\sqrt[3]{b^a}$

Solve each equation.

5.  $(4^{\frac{x}{2}})(4^{\frac{x}{5}}) = 4^{14}$

6.  $(2^{2x+2})(2^{3x-7}) = 2^{25}$

7.  $\frac{8^{\frac{x}{2}}}{4^{\frac{x}{3}}} = 2^{-\frac{5}{2}}$

8.  $\left(\frac{1}{64}\right)^{\frac{x}{2}+1} = \left(\frac{1}{16}\right)^{\frac{x}{3}-3}$

9.  $3 = (5^{\frac{1}{3}})(x^{\frac{1}{3}})$

10.  $36^{2x-7} = 6^{x-5}$

11. Explain how to solve an equation of the form  $x^{\frac{p}{q}} = a$  for nonzero integers  $x$ ,  $p$ ,  $q$ , and  $a$ . What is  $x$  in terms of  $a$ ,  $p$ , and  $q$ ?

12. A triangle has a base of  $x^{\frac{1}{2}}$  m and a height of  $x^{\frac{3}{4}}$  m. If the area of the triangle is  $16 \text{ m}^2$ , what are the base and the height of the triangle?

**LAWS OF EXPONENTS****3.1.1 and 3.1.2**

In general, to simplify an expression that contains exponents means to eliminate parentheses and negative exponents if possible. The basic **laws of exponents** are listed here.

- |     |                             |   |
|-----|-----------------------------|---|
| (1) | $x^a \cdot x^b = x^{a+b}$   | Examples: $x^3 \cdot x^4 = x^7$ ; $2^7 \cdot 2^4 = 2^{11}$  |
| (2) | $\frac{x^a}{x^b} = x^{a-b}$ | Examples: $\frac{x^{10}}{x^4} = x^6$ ; $\frac{2^4}{2^7} = 2^{-3}$                                       |
| (3) | $(x^a)^b = x^{ab}$          | Examples: $(x^4)^3 = x^{12}$ ; $(2x^3)^5 = 2^5 \cdot x^{15} = 32x^{15}$                                 |
| (4) | $x^0 = 1$                   | Examples: $2^0 = 1$ ; $(-3)^0 = 1$ ; $(\frac{1}{4})^0 = 1$  |
| (5) | $x^{-n} = \frac{1}{x^n}$    | Examples: $x^{-3} = \frac{1}{x^3}$ ; $y^{-4} = \frac{1}{y^4}$ ; $4^{-2} = \frac{1}{4^2} = \frac{1}{16}$ |
| (6) | $\frac{1}{x^{-n}} = x^n$    | Examples: $\frac{1}{x^{-5}} = x^5$ ; $\frac{1}{x^{-2}} = x^2$ ; $\frac{1}{3^{-2}} = 3^2 = 9$            |
| (7) | $x^{m/n} = \sqrt[n]{x^m}$   | Examples: $x^{2/3} = \sqrt[3]{x^2}$ ; $y^{1/2} = \sqrt{y}$  |

In all expressions with fractions we assume the denominator does not equal zero.

For additional information, see the Math Notes box in Lesson 3.1.2. For additional examples and practice, see the Checkpoint 5A problems in the back of the textbook.

**Example 1**

Simplify:  $(2xy^3)(5x^2y^4)$

Reorder:  $2 \cdot 5 \cdot x \cdot x^2 \cdot y^3 \cdot y^4$

Using law (1):  $10x^3y^7$

**Example 2**

Simplify:  $\frac{14x^2y^{12}}{7x^5y^7}$

Separate:  $\left(\frac{14}{7}\right) \cdot \left(\frac{x^2}{x^5}\right) \cdot \left(\frac{y^{12}}{y^7}\right)$

Using laws (2) and (5):  $2x^{-3}y^5 = \frac{2y^5}{x^3}$

**Example 3**

Simplify:  $(3x^2y^4)^3$

Using law (3):  $3^3 \cdot (x^2)^3 \cdot (y^4)^3$

Using law (3) again:  $27x^6y^{12}$

**Example 4**

Simplify:  $(2x^3)^{-2}$

Using law (5):  $\frac{1}{(2x^3)^2}$

Using law (3):  $\frac{1}{2^2 \cdot (x^3)^2}$

Using law (3) again:  $\frac{1}{4x^6}$

**Example 5**

Simplify:  $\frac{10x^7y^3}{15x^{-2}y^3}$

Separate:  $\left(\frac{10}{15}\right) \cdot \left(\frac{x^7}{x^{-2}}\right) \cdot \left(\frac{y^3}{y^3}\right)$

Using law (2):  $\frac{2}{3}x^9y^0$

Using law (4):  $\frac{2}{3}x^9 \cdot 1 = \frac{2}{3}x^9 = \frac{2x^9}{3}$

**Problems**

Simplify each expression. Final answers should contain no parentheses or negative exponents.

1.  $y^5 \cdot y^7$

2.  $b^4 \cdot b^3 \cdot b^2$

3.  $8^6 \cdot 8^{-2}$

4.  $(v^5)^2$

5.  $(3a)^4$

6.  $\frac{m^8}{m^3}$

7.  $\frac{12m^8}{6m^{-3}}$

8.  $(x^3y^2)^3$

9.  $\frac{(y^4)^2}{(y^3)^2}$

10.  $\frac{15x^2y^5}{3x^4y^5}$

11.  $(4c^4)(ac^3)(3a^5c)$

12.  $(7x^3y^5)^2$

13.  $(4xy^2)(2y)^3$

14.  $\left(\frac{4}{x^2}\right)^3$

15.  $\frac{(2a^7)(3a^2)}{6a^3}$

16.  $\left(\frac{5m^3n}{m^5}\right)^3$

17.  $(3a^2x^3)^2(2ax^4)^3$

18.  $\left(\frac{x^3y}{y^4}\right)^4$

19.  $\left(\frac{6x^8y^2}{12x^3y^7}\right)^2$

20.  $\frac{(2x^5y^3)^3(4xy^4)^2}{8x^7y^{12}}$

21.  $x^{-3}$

22.  $2x^{-3}$

23.  $(2x)^{-3}$

24.  $(2x^3)^0$

25.  $5^{1/2}$

26.  $\left(\frac{2x}{3}\right)^{-2}$

## Properties of Exponents Worksheet 3

For Exercises 1–12, the word in parentheses stands for a number. Use the value the table assigns to each letter of the alphabet to find the sum of the letters in each word. Each exponent is expressed with letters. Replace each letter with its corresponding number from the table to find the exponent. Simplify each power.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>
1	2	3	4	5	6	7	8	9	10	11	12	13

<i>N</i>	<i>O</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>
14	15	16	17	18	19	20	21	22	23	24	25	26

1. (add) $^{\frac{A}{B}}$
2. (Wednesday) $^{\frac{A}{B}}$
3. (zero) $^{\frac{A}{C}}$
4. (sandwich) $^{\frac{A}{D}}$
5. (she) $^{\frac{A}{E}}$
6. (American) $^{\frac{A}{F}}$
7. (ski slopes) $^{\frac{A}{C}}$
8. (year round) $^{\frac{1}{B}}$
9. (denominator) $^{\frac{A}{G}}$
10. (wireless network) $^{\frac{A}{C}}$
11. (correlation coefficient) $^{\frac{A}{B}}$
12. (Yosemite National Park) $^{\frac{A}{E}}$

# Recovery uneven from Exxon Valdez oil spill

By McClatchy Washington Bureau, adapted by Newsela staff on 03.28.14

Word Count **884**

Level **1050L**



Exxon Valdez oil spill workers recover and clean birds soiled by crude oil spilled when the tanker ran aground in Prince William Sound, Alaska, on April 6, 1989. Bob Hallinen/Anchorage Daily News/MCT

WASHINGTON — Andy Wills was laying on a friend’s couch in Cordova, Alaska, on March 24, 1989. He was up early, ready to head out and harvest spring herring in Prince William Sound.

“My buddy had just handed me a cup of coffee in the morning and we’re watching ‘Good Morning America,’” Wills said. “And there’s the Exxon Valdez on TV, spilling oil.”

He added, “We were like, ‘No!’ It was just the start of a nightmare.”

The herring of Prince William Sound still have not recovered. Neither have killer whales, and legal issues remain unresolved a quarter of a century later. Monday was the 25th anniversary of the disaster, in which the tanker Exxon Valdez ran aground on Bligh Reef and spilled at least 11 million gallons of oil into the clean, unspoiled waters of the sound.

## Persistent Pockets Of Oil

Prince William Sound today looks spectacular, a stunning landscape of mountainous fjords — cliffs framed by blue-green waters, and thickly forested islands. Pick up a stone on a rocky beach,



maybe dig a little, though, and it is possible to still find pockets of oil.

“I think the big surprise for all of us who have worked on this thing for the last 25 years has been the continued presence of relatively fresh oil,” said Gary Shigenaka. He’s a marine scientist for the National Oceanic and Atmospheric Administration.

The question of how well Prince William Sound has recovered from what at the time was the nation’s largest oil spill is open to debate. Exxon Mobil Corp., which owned the Valdez, says studies show the area is bouncing back.

“The sound is thriving environmentally and we’ve had a very solid, complete recovery,” said Richard Keil, a spokesman for Exxon Mobil.

Government scientists have a different view.

The Exxon Valdez Oil Spill Trustee Council, a state-federal group, was set up to oversee the revival of Prince William Sound. It considers the pink and sockeye salmon to be recovered, as well as the bald eagles and harbor seals. Several other species are listed as still recovering.

Sea otters have had a rough time. Thousands died in the months following the spill, and the population has struggled to recover in the 25 years since. The U.S. Geological Survey reported earlier this month that the sea otters of the area had finally returned to their pre-spill numbers.

Listed as still not recovering are the herring, a group of killer whales and a type of North Pacific seabird.

### **The Fate Of The Herring**

Wills, who fished salmon as well as herring, said the spill left a huge mark on those who made a living from Prince William Sound.

Exxon sent money to people to make up for what they lost. But, the checks were too late and too little, he said.

“A lot of people got real hurt. I know a lot of guys committed suicide and all that stuff. I got divorced,” said Wills, who now runs a bookshop and cafe in Homer, Alaska. “It was rough.”

Among the scientific puzzles of the spill, the fate of the herring is a particular mystery. It’s an extremely important species for the ecosystem, giving food and protein to whales, salmon, birds and others.

Prince William Sound was home to a booming spring herring fishery. It supported fishermen badly in need of cash coming off the long winter in between fishing seasons.

Researchers found physical changes in herring exposed to the oil. Then, four years after the spill, the herring population crashed dramatically. The reasons are a subject of intense debate, with suggestions that the effects of the spill could have made the herring weak against disease.

### **Drop In Killer Whales**

“No other (fish) stock in Alaska crashed in 1993, so that’s indirect evidence it is spill-related,” said Jeep Rice. He studied the spill for more than 20 years as a federal scientist. “That’s kind of weak, and yet it is about as good as we can get in terms of explaining why it happened in that year.”

The herring never really recovered, and the current population is too low to fight off predators. Herring fishing, with a brief exception, has been closed for more than 20 years.

The killer whales of Prince William Sound also have suffered. Two groups were hit especially hard. Scientists saw killer whales from one of the groups swimming through oil floating on the ocean surface. A Los Angeles Times photo showed whales from the other group swimming near the tanker as it gushed oil. Populations dropped dramatically in the year after the spill.

“The evidence is pretty compelling that it was a spill-related effect on those two groups of killer whales,” said federal marine scientist Shigenaka.

One of the groups continues its slow recovery. The other numbered 22 killer whales at the time of the spill and is down to just seven. Scientists now expect it to go extinct. If it does, it would be the end of a genetic line that researchers say has hunted in the area for thousands of years, maybe since the last ice age.

The federal and state governments are still weighing the science of the spill’s effects. Court cases will decide whether to seek more money from Exxon Mobil for cleaning up the remaining oil.



# On 30th anniversary, lessons learned from the Exxon Valdez oil spill

By Seattle Times, adapted by Newsela staff on 04.11.19

Word Count **1,003**

Level **1050L**



Image 1. The tanker Exxon Valdez is pulled across Prince William Sound, Alaska on April 5, 1989, by a tug boat, past floating ice, after having been freed from the reef it struck 13 days earlier. Photo by: Bettman/Getty Images

SEATTLE, Washington — Before sunrise on March 24, 1989, Dan Lawn stepped off of a small boat. He started climbing the ladder dangling from the grounded Exxon Valdez oil tanker, or ship. He peered down into the water of Prince William Sound, and saw an ugly spectacle he'd never forget.

"There was a 3-foot wave of oil boiling out from under the ship," recalls Lawn, who was then working in Valdez, Alaska, as an oil business watchdog for the state's Department of Environmental Conservation. "You couldn't do anything to stop it." A watchdog is a person or organization that monitors and publicizes the behavior of others. This can include individuals, corporations or the government. Watchdogs try to keep people accountable.

Lawn was a first responder to the 986-foot-long Exxon Valdez after it went off course and punctured its bottom after hitting a reef. This March marked 30 years since the Valdez disaster.

## What Was Then The Largest Spill In U.S. History

Lawn spent a day assessing the damage as oil gushed out. There would be no quick spill response to slow the spread. Some 11 million gallons of oil would leak from the Exxon Valdez in what was then the largest spill in U.S. history, and one Lawn had long warned about.

Eventually, the oil would foul parts of 1,300 miles of coastline, killing marine life ranging from microscopic planktons to orca whales. The accident would change how oil transportation is done in Alaska and elsewhere in the world.

Today, due to changes in the law, all oil tankers crossing the oceans are double-hulled, unlike the more breech-prone single hull of the Exxon Valdez. This double-layer significantly reduces but does not prevent spills. Last year, a double-hulled Iranian tanker exploded and leaked oil after crashing into a ship in the South China Sea.

### **Overhauled Laws**

In Washington, the state government overhauled oil-spill laws after the Exxon Valdez. More than 9.45 billion gallons of oil travels in the nearby waters annually. Now, all barges carrying oil — as well as oil tankers — must have double bottoms. Another requirement is that a rescue tugboat is stationed nearby.

The volume of oil that tankers carry through Washington waters could increase dramatically in the years ahead. Canada is poised to triple its oil shipping.

The threat of massive spills does not only come from tankers. The 2010 Deepwater Horizon drilling rig explosion that killed 11 workers led to an oil spill of 168 million gallons. This amount made the oil spilled by the Exxon Valdez spill look small.

Before the Exxon Valdez spill, Lawn was an outspoken critic of the preparation for a potential oil spill.

Lawn talked with people where he worked at the state Department of Environmental Conservation. He said there wasn't enough equipment available in the rescue plan by Alyeska Pipeline Service Company, an organization in the oil business.

"They didn't want to hear it," said Lawn. He's now retired and divides his time between Kirkland, Washington, and Valdez, a Prince William Sound town.

### **Rescue Equipment Buried In Snow**

When the accident happened, some of the limited rescue equipment was buried in snow.



For three days, relatively calm weather prevailed. The oil lay thick around the ship, offering a limited time for action. Then came a storm that scattered the oil along the coastlines. For four years, crews embarked on a \$2.1 billion cleanup that left behind oil that still can be detected on some stretches of shoreline.

Up to 10,000 workers and 1,000 boats cleaned up the spill. At first, one method used hot water on the beaches, but that was stopped. It was found to cook marine life and do more harm than good, according to research cited by the Exxon Valdez Oil Spill Trustee Council.

Orcas surfaced through the oil slicks to breathe. Among a resident pod of 36 whales in the area, 14 had disappeared by 1990, according to the Trustee Council.

### **From 22 To 7 Whales**

Another traveling whale pod that also frequented Prince William Sound fared worse. Before the spill, the pod had 22 whales. Since then, the pod has declined to seven whales, and there have been no new calves born.



Craig Matkin has studied the whales since 1984. He said these whales, which eat seals, were probably the most affected. They not only breathed the fumes and oil, but also ate oiled prey.

That pod appears doomed. "It is so sad," Matkin said.

Three decades after the spill, Alyeska and the oil companies have expanded measures to prevent spills. Two escort tugs, for example, accompany every oil tanker that motors through Prince William Sound. If needed, they can steer the tanker.

The capacity to store cleaned-up oil with barges or other floating equipment is better. There's more than 50 times more storage space than in 1989.

"The technology has changed immensely," said Andres Morales, Alyeska's director of emergency preparedness. "There are about 300 people dedicated to preventing and responding to spills."

The Prince William Sound Regional Citizens Advisory Council was created after the spill. The oversight group continues to have concerns. One study it funded shows it "still is not possible to effectively clean up an oil spill during the strong winds and waves in which tankers are allowed to transport oil."

Scientists and the Washington Department of Fish and Wildlife have practiced drills to herd orcas away from oil. In the event of a spill, they bang on pipes underwater, making loud noises.



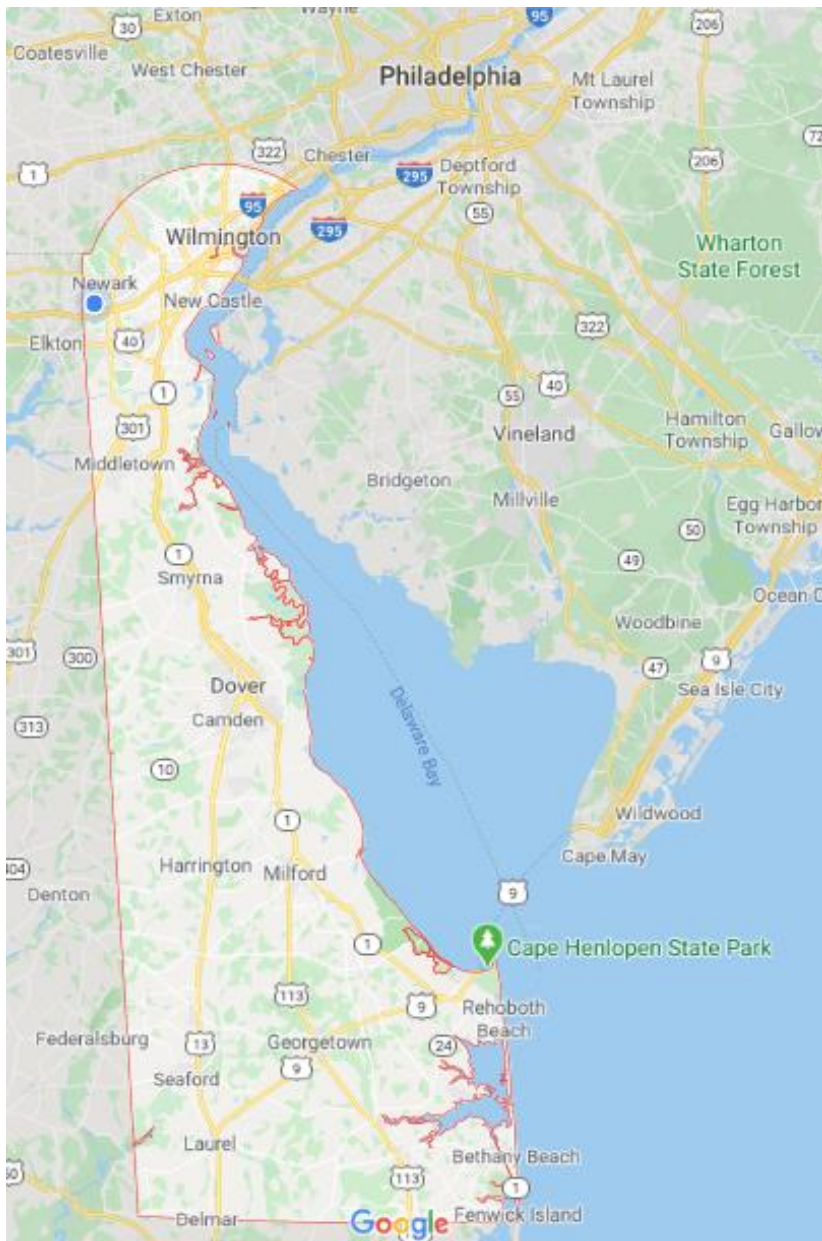
## The Unique Nature of Places – Part 1

Benchmark Standard	Geography 3a: Students will understand the processes which result in distinctive cultures, economic activity, and settlement form in particular locations across the world.
Grade	9
Vocabulary / Key Concepts	Site; situation; physical characteristics; cultural characteristics; urbanization

~This lesson is a part of the DRC Unit “The Unique Nature of Places” – Modified by CSD for use at home~

**ACTIVITY 1:** Read the following excerpt and respond to the questions:

You are unique. What makes you unique are two main factors: your physical features and your environment, or where you grew up and the experiences you had. Like people, places have their own unique makeup and character. Just as humans have physical features, so do places. While the physical features for people might include gender and height, physical features like hilly terrain, dry climate, or red soil help to make a place unique. The physical features of a place are called the **site**. Every **site** has a unique combination of physical environmental conditions such as climate, landforms, soils, and vegetation. Site includes more than just the physical landscape. The cultural features, number of people, their religion, their language, the economy, their buildings and roads, their settlement patterns are also all part of a place’s site.



\*Q #1: Can you think of examples of places where the physical landscape is very distinct, even unforgettable? Describe at least two places and what makes them distinct.

\*Q #2: What about the human or cultural features? Describe at least two places and what makes them distinct.

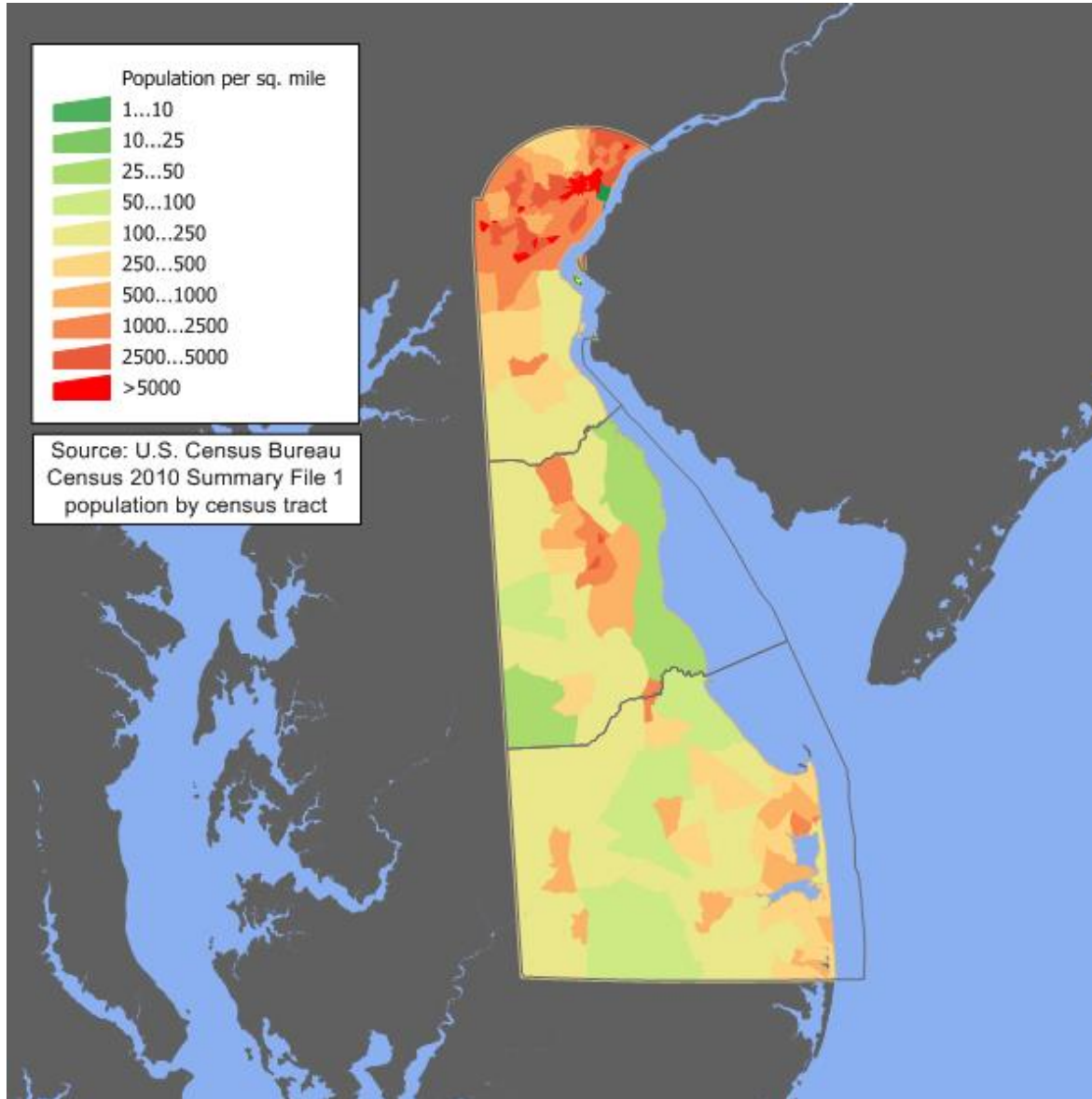
In a similar way to the impact of your environment on your unique character, the surroundings of a place also affect and influence it. How close or far away are other cities? Are natural resources available near-by? Location and interaction relative to all other places is called **situation**. Studying the site and also the situation of a place helps us understand what makes a place unique. For different purposes, such as farming and trade, some places have better site and situation than do other places. The right combination of site and situation can lead to prosperity or economic success for businesses in a place, while the wrong combination can put people and businesses there at a disadvantage.

**Site** = The **Physical AND Human** Characteristics of a place.

**Situation** = How a place is positioned in **relation** to other places and surroundings.

\*Q #3: What factors can you identify about Wilmington’s site and situation that might help explain why it is Delaware’s largest city

Delaware's history and settlement patterns show how choices based on site and situation affected the distribution of places in Delaware. When Europeans first began to set up settlements in Delaware, like Lewes and New Castle, it was vital for the settlements' site to be on the coast and to have fertile soil. A coastal site enabled colonists to be situated where the colony could still interact and trade with their mother countries. Fertile soil was needed for the colonists to



grow food. Recently in Delaware's settlement, suburbs have been situated away from urban areas for various reasons such as cheaper land or the perception of urban crime. Suburbs are only feasible because of the widespread availability of cars and the development of a road network that make it possible Delawareans to move around easily.

\*Q #4: What factors have caused populations in Delaware to spread out from its original settlements to the rural farmlands in the middle?

Whether you have been outside of Delaware or not, can you describe one place that you think is unique compared to Delaware – either due to physical characteristics or cultural characteristics? An example of a cultural characteristic is that places down south refer to a soda as “pop.” A physical characteristic would be that Florida is very flat, compared to Colorado which is very mountainous.

**ACTIVITY 2:** On a separate sheet of paper, answer the following questions for each of the 6 photographs (Since there are 6 photographs, each question will be answered 6 different times - photographs are below the questions).

**ASK GOOD PLACE QUESTIONS: TO HELP STUDENTS READ PICTURES AND GRAPHICS BETTER**

**About the physical characteristics:**

1. Is this place flat or mountainous, wet or dry, natural or altered by man?
2. A)What types of landforms are visible? B)What other natural features do you see? C)What vegetation? D)What animal life? E)What resources?
3. What kind of climate does this place have? How can you tell?

**(continued on next page)**

**About the human characteristics:**

1. Does anyone live here? Who? Can you describe the people? How? How many people live in this place? Why do you suppose these people chose this place to live? Why is this place urban (or rural)? Is there evidence of urbanization, if not here, nearby? What is necessary for urbanization? Do you see those things here?
2. What is the architecture? Are there different styles that indicate sequential building? What are the materials used in the buildings?
3. What level of technology is present? Is education important here?

**About movement and change:**

1. How do people make a living here? Is recreation an important part of their lives? Is this subsistence living? What are the products of this place? What must be imported? What is exported? Is there evidence of trade? What is probably traded? To where and from where?
2. Is life valuable here? Is population density a factor in the quality of life of these people? Is there evidence that new ideas have been adopted by the people in this area? Where would new ideas come from? What are barriers to communication of ideas? Are there man-made natural barriers? Is language important? Are there any ethnic conflicts in this place? Would war or revolution cause barriers to movement of ideas, people, or products?

**About the perceptions of the author and/or illustrator:**

1. How does the artist or illustrator feel about this place? How can you tell?
2. What does the artist or illustrator think is important about this place? How can you tell?
3. What words does the author use to describe this place? What details are included?
4. What did the artist leave out? Why?

**Photograph 1**



Photography 2



Photograph 3





Photograph 4



Photograph 5





Photograph 6



**ACTIVITY 3:** After you have completed the “Ask Good Place Questions” for each photograph, recreate the Chart on your paper and answer the “Conclusion of Place” column and the “Evidence” column for each photograph.

Photograph	Conclusion of Place (Which city of country do you think this is?)	Evidence (What evidence does the photo provide to back this claim, ie. Physical characteristics, human characteristics, movement and change?)
1		

Once finished, check your answers (below the line -----) and complete the “Check for Understanding” Activity 4.

**ACTIVITY 4:** Check for Understanding

1. What places did you correctly identify?
2. What places did you not identify correctly?
3. What additional information, if any, might have helped to better identify the place/location?

Photograph 1: The sun sets behind onlookers at the Big Rodeo in Burwell, Nebraska.

Photograph 2: A woman dressed as a lobster participates in the annual Lobster Festival in Rockland, Maine.

Photograph 3: a mariachi band serenades newlyweds on the way to their reception in San Miguel de Allende, Mexico. Mariachi bands have been around since the 1860s, when France occupied Mexico.

Photograph 4: At a mall in Dubai, United Arab Emirates (UAE), Muslim shoppers pause to participate in Friday afternoon prayers.

Photograph 5: A father and child take a stroll in the rain to Coventry Cathedral, which was mostly destroyed by bombs in World War II (do you see the old and new?). Coventry, England

Photograph 6: For centuries, the gondola was a major means of transportation and the most common watercraft within Venice. In modern times, the boats still do have a role in public transport in the city, serving as traghetto (small ferries) over the Grand Canal operated by two oarsmen. Venice, Italy