7th Grade NTI DAY #26

Contents:

- **Language Arts**
- **Math**
- **Science**
- **Social Studies**

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A Better Bat?

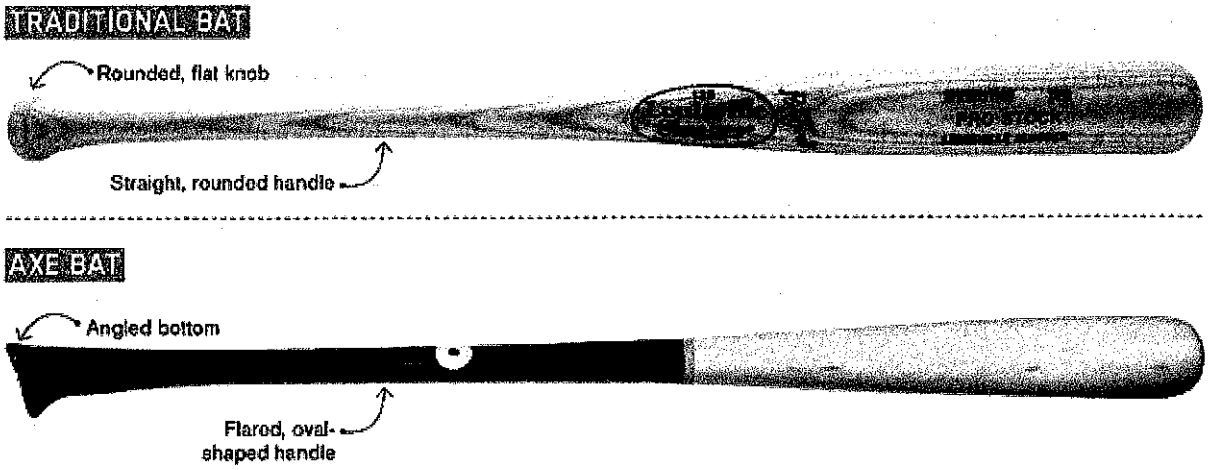
The newly designed Axe Bat aims to improve baseball players' performance and reduce injuries

MAY 8, 2017 By Andrew Klein *Science World Magazine*

Last May, a baseball game between the Boston Red Sox and the New York Yankees was locked in a 6-6 tie in the bottom of the seventh inning. That's when Christian Vazquez—known more for his defensive skills as a catcher than for his batting power—stepped up to the plate. The pitcher threw a pitch and . . . CRACK! Vazquez surprised everyone by smashing a home run out of Fenway Park! The hit won the game for the Sox, and Vazquez was a hero.

It was the first game in which Vazquez used the Axe Bat. Baden Sports, in Renton, Washington, created the new bat to fit more naturally and comfortably in a player's palms. The Axe Bat's *ergonomic* design means that it's more efficient and safe for people to use.

"The grip allows a batter to focus more on hitting rather than holding on tight to an unusually shaped object," says Hugh Tompkins, an industrial designer who helped create the Axe Bat. "If you can more comfortably grip a bat, it's going to give you more control."



STEVEN FREEMAN/GETTY IMAGES (TRADITIONAL BAT); AXE BAT (AXE BAT)

In 2016, 31 players on 14 Major League Baseball teams set aside traditional bats in favor of the Axe Bat. Among them were Vazquez's teammates Dustin Pedroia and Mookie Betts— two of baseball's superstar hitters. Both players have had improvements in their batting averages since making the switch.

Smaller versions of the Axe Bat in a variety of materials, like aluminum, have also been approved for youth baseball leagues. Tompkins believes the bat's design could help players, from kids to pros, boost their performance and reduce the risk of common hand injuries.

The Science Behind the Ax

Watch a video about the intensive research and testing involved in the development of baseball bats.

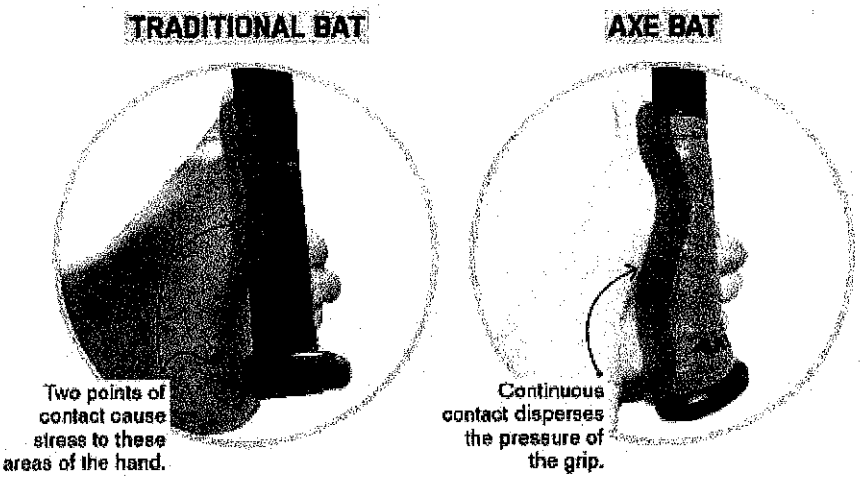
A GOOD GRIP

The shape of the Axe Bat's handle is the biggest difference from a traditional baseball bat's design (see *Bat Comparison*). It has an oval-shaped grip with a flared base, so it fits flush against the contours of a person's palms and fingers—just like the handle of an ax used for chopping wood.

Baseball bat design hasn't changed much in 150 years, says Tompkins. That's because of the rotating machine, called a *lathe*, used to carve bats. It can make only cylindrical shapes—like traditional round bat handles. With new manufacturing technology, however, Tompkins can customize a bat's shape. He inputs the measurements for the Axe Bat into computer software, and a machine called a *computer numerical control mill* uses the data to carve out the irregularly shaped bat.

BAT COMPARISON

The handle of the Axe Bat fits the contours of a person's hands. Its oval and angled handle allows a batter to use less force to grip it (*right*) than the rounded handle of a traditional bat (*left*).



AXE BAT

Findings from a study funded by Baden Sports show that batters perform better using the Axe Bat because its ergonomic handle allows for a more relaxed grip. "Because a batter has to squeeze their hand tight to get a good grip around a traditional rounded bat, all of those muscles are under a lot of pressure," says Tompkins. A looser grip allows a batter to have a freer swing.

"Being comfortable when hitting is the most important thing about swinging," explains Meredith Wills. She's a physicist working in sports data science. She is studying how physics can improve baseball performance. Wills says that having a relaxed grip helps the best hitters reproduce the same powerful swing over and over.

SWEET SWING

Big-league players try to hit a ball on the bat's sweet spot. This area on the barrel of the bat has the largest circumference, which means that it is the spot on a bat with the most mass.

When a player swings a bat, the sweet spot gains the most momentum (an object's mass multiplied by its velocity). The greater the bat's momentum when it makes contact with the ball, the harder the ball is hit, says Wills. The sweet spot is also located on the side of the bat where the wood grain is strongest. In bats made of maple wood, like the Axe Bat, you can identify the strongest grain by

looking for concentric ovals. Hitting the ball at this spot results in the least vibration throughout the bat and, in turn, a harder-hit ball.

MARK J. REBILAS/USA TODAY SPORTS (CORREA); KIM KLEMENT/USA TODAY SPORTS (PEDROIA)

The Axe Bat helps players hit the sweet spot more often. Tompkins explains that since there is only one way to grip the Axe Bat, a batter is always swinging the bat's face, with the sweet spot, toward the ball. This is called one-sided hitting, which he says is more difficult to reproduce with a round-handled bat, because a batter cannot grip it exactly the same way every time.

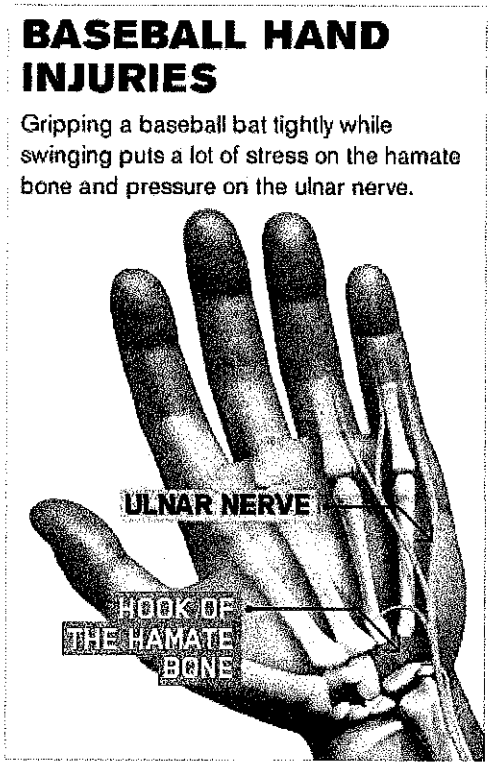
PLAYING SAFE

Not only is the Axe Bat designed to help players perform better, it also reduces the likelihood of injury. "Players get blisters, calluses, bruises, and even broken bones where the knob [of a traditional bat] presses into the hand," says Tompkins.

The pressure needed to get a firm grip on a bat's handle and knob causes the most common batting injury: fracturing the hook of the *hamate bone*, near the pinkie-finger side of the palm (see *Baseball Hand Injuries*). About 50 active major-league players have broken this bone in their hand at some

4/8

point during their career. A tight grip also places pressure on the *ulnar nerve*, which can cause weakness in a batter's grip and, in turn, less control while swinging.



MAGICTORCH

Because the handle of the Axe Bat lies flat and is supported throughout the palm and fingers, pressure is dispersed. This reduces the stress on distinct areas of the hand, explains Dr. Melissa Leber, a sports medicine doctor at Mount Sinai Hospital in New York City.

"I think it would cause fewer hand injuries, especially for college and pro athletes who hold a grip very tight," she says. And while Leber believes that more research should be done to prove the benefits of the Axe Bat, she says that "the bat, handle, and grip appear to be safer than the traditional round grip."

Tompkins says that younger major-league players have been more willing to try the newly designed bat. "Some veterans may dismiss [the Axe Bat] as a gimmick," says Tompkins, "but I think once they see other players improving, that will change."

5/8

Name: _____

BASEBALL STATS

In "A Better Bat?" (p. 14), you read that some major-league players who have switched to the Axe Bat saw improvements in their *batting averages*. A player's batting average is one of the top statistics used to evaluate his or her performance. Read more about this important measurement and how it's calculated in the box below. Then use the information to answer the questions that follow.

BATTING AVERAGE

A player's batting average is calculated using his number of *hits*, or the times the player hits a ball into fair territory and successfully reaches first base. All types of hits—singles, doubles, triples, and home runs—count equally as one hit. Hits are compared with the player's *at-bats*, or the number of times the player stepped up to home plate and attempted to hit a pitch. Some batting attempts are not included in a player's at-bats, such as if the player is hit by a pitch or *walked* (allowed to move to first base without hitting the ball).

The following equation is used to calculate a player's batting average:

Batting average = hits ÷ at-bats

(Note: A batting average is always calculated as a decimal number to three decimal places.)

QUESTIONS

1. Catcher Christian Vazquez of the Boston Red Sox, who now uses the Axe Bat, has had 347 at-bats and 81 hits during his time in the major leagues. What is his career batting average?

2. The statistics below are for Ty Cobb—a center fielder who played in the major leagues from 1905 to 1928. He has the highest career batting average of any player. What was his batting average?
At-bats: 11,434
Hits: 4,189

3. In the 2016 regular season, DJ LeMahieu of the Colorado Rockies had the highest batting average in the major leagues. How did his batting average last year compare with the first year he played with the Rockies (2012)? Describe two other changes to his batting statistics between the two years.

2012
At-bats: 229
Hits: 68

2016
At-bats: 552
Hits: 192

4. What would be the batting average of a player who made a hit every time he was at-bat? Show your calculation.

5. In the past, professional baseball pitchers could intentionally walk very good hitters. When the hitter was at bat, the pitcher threw every ball far out of the strike zone so that the batter didn't have an opportunity to hit the ball. Would an intentional walk have affected the hitter's batting average? Explain your answer.

6/8

Name: _____

UNFAIR ADVANTAGE?

In "A Better Bat?" (p. 14), you learned about a new baseball bat being used by Major League Baseball players. Do you think new equipment that may give players an advantage over others should be allowed? What factors, like materials or design, should officials consider when determining whether the equipment should be permitted? Answer the following questions. Then use your responses to write an argumentative essay for or against the use of performance-enhancing equipment in professional sports on a separate piece of paper.

WHAT DO YOU THINK? A argumentative essay should include a position statement. This should clearly and concisely state your opinion about whether or not specialized equipment should be allowed.

SUPPORT YOUR CLAIM: You should support your argument with at least two convincing pieces of evidence.

EVIDENCE 1:

EVIDENCE 2:

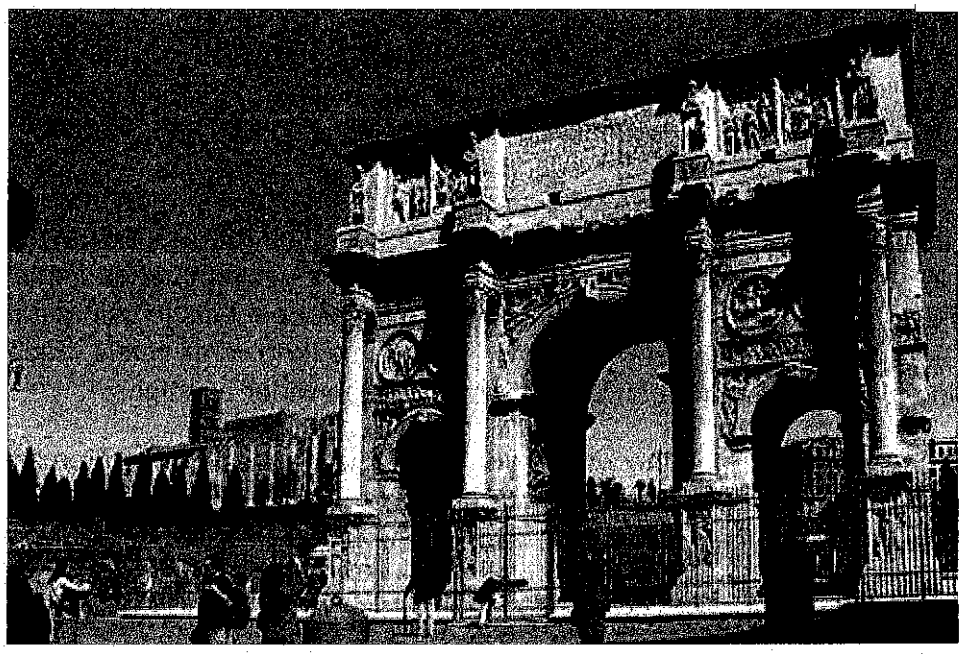
CLARIFY YOUR OPINION: Your essay should include any additional information that helps explain your stance. For example, should new equipment meet certain requirements before it can be allowed?

CONCLUSION: The last paragraph of an argumentative essay should summarize your point of view and show your reader why he or she should agree with your opinion.

7th Grade Social Studies
Clark/Bloomfield
NTI Day 26

The Influence of the Arch

by ReadWorks



The lasting influence of ancient Rome is apparent in many areas of our contemporary society. Sophisticated elements of law, engineering, literature, philosophy, architecture, and art can all be traced back to the Roman Empire. But perhaps one of the most lasting contributions from Roman civilization is something we see nearly every day: the Roman arch.

An arch is a curved structure designed to support or strengthen a building. Arches are traditionally made of stone, brick, or concrete; some modern arches are made of steel or laminated wood. The wedge-shaped blocks that form the sides of an arch are called voussoirs, and the top center stone, called the keystone, is the last block to be inserted. During construction, the arch is supported from below before the keystone is put in. The curve of an arch may take different shapes, but it is often a rounded or pointed semicircle.

Although the Romans revolutionized the arch, the structure has been around since before them. The Assyrians used arches to construct vaulted chambers or underground drains. However, these early arches were only suitable for small structures. The designs weren't sophisticated enough to support larger edifices, like palaces or government buildings.

The Romans, however, improved the arch and made it strong enough for large-scale, widespread use. By developing an arch capable of supporting huge amounts of weight, they laid the groundwork for some of the most important advancements in architectural history. The arch became a vital feature of bridges, gates, sewers, and aqueducts, which in turn were integral to the modernization of cities.

So how did the Romans do it? With their vast knowledge of engineering and design, Roman architects developed a very strong type of concrete by mixing lime and volcanic sand. Arches made of this material could support extremely heavy weights. In most cases, the Romans didn't use mortar, but instead relied on the precision of their stonework to ensure the sidewalls of the arch could withstand

the pressure from the keystone.

After the arch, Roman architecture continued to evolve with improvements on the vault. A vault is an arched overhead structure that provides a space with a ceiling or roof. Like the arch, the vault has been around since ancient times. But it was the Romans who created a rigid, solid structure that didn't need any external buttresses or supports. This advancement allowed the Romans to easily construct vaults over vast spaces to create amphitheaters and basilicas. The vault also led to the development of the copula and the dome, proving just how far-reaching the arch's influence goes.

An arch is more supportive than a horizontal beam due to the downward pressure on an arch. The development of the arch and the vault were also crucial to the construction of what may be one of the most recognizable structures on earth: the Roman Coliseum. Its vaulted arches made the ceilings much stronger than a flat ceiling. In construction, there are many benefits to using arches instead of straight beams. Arches are advantageous to horizontal beams (known as lintels) because they're made of small blocks of brick or stone, and therefore can span wider openings.

It wasn't long before cultures around the world adopted the new and improved Roman arch. Muslims from the Arab world modified the Roman design and created pointed, scalloped and horseshoe arches in their magnificent palaces and mosques. These unique arches came to be emblematic of Islamic art and architecture. In Europe, the pointed arch was used extensively in Gothic architecture. Not only did pointed arches increase a structure's strength and stability, but they also created the soaring, spacious feel characteristic of many Gothic churches. By the Middle Ages, more complex arch and vault structures were introduced.

The Roman Arch also set the foundation for the magnificent triumphal arch. These imposing structures are generally built over large thoroughfares to commemorate important military victories. They're often ornately decorated and detailed with inscriptions. It's estimated that at one time, Rome alone had over 50 triumphal arches. Today only a handful remain, and the Arch of Constantine in Rome and the Arc de Triomphe in Paris are two of the most recognizable triumphal arches.

Centuries after the fall of the Roman Empire, modern arches use the same basic blueprint. Over time, the arch has come to define some of the most impressive buildings around the world. From the Taj Mahal in India to the U.S. Capitol Building in Washington, D.C., the arch gives many buildings a sense of elegance, grandeur, and sophistication.

Name: _____ **Date:** _____

1. What is the arch designed to do?

A. improve the look of a building

B. support or strengthen a building

C. provide a foundation for a building

D. protect the exterior of a building

2. How does the author compare the arch to the horizontal beam?

A. The arch costs less money than the horizontal beam.

B. The arch is heavier than the horizontal beam.

C. The arch is less supportive than the horizontal beam.

D. The arch is more supportive than the horizontal beam.

3. Read the following sentences: "The Assyrians used arches to construct vaulted chambers or underground drains. However, these early arches were only suitable for small structures. With their vast knowledge of engineering and design, Roman architects developed a very strong type of concrete by mixing lime and volcanic sand. Arches made of this material could support extremely heavy weights."

Based on this information, what can be concluded about the material the Assyrians used to make their arches?

A. It was most likely not as strong as the material the Romans used.

B. It was most likely stronger than the material the Romans used.

C. It was most likely the same material the Romans used.

D. It was most likely similar to the material the Romans used.

4. The ability of arches to support huge amounts of weight is due to improvements in what?

A. the design of the arches only

B. the material of the arches only

C. neither the design nor the material of the arches

D. both the design and the material of the arches

5. What is this passage mainly about?

A. improvements and uses of the arch

B. architectural designs of different societies

C. the difference between Assyrian and Roman architecture

D. famous buildings and stadiums

6. Read the following sentence: "The designs weren't sophisticated enough to support larger **edifices**, like palaces or government buildings."

As used is this sentence, what does the word "**edifices**" most nearly mean?

A. civilizations

B. innovations

C. materials

D. structures

7. Choose the answer that best completes the sentence below.

_____ the Romans improved the arch, the Muslims made modifications to the Roman design.

A. Before

B. However

C. After

D. Because

8. According to the passage, what are some of the structures that use arches?

9. According to the passage, how did the ancient Romans improve the arch?

10. Explain at least two ways improvements to the arch led to advancements in architecture. Use information from the passage to support your answer.

NTI Days 26-27: Submit on Day 27

COMMONLIT

Name: _____

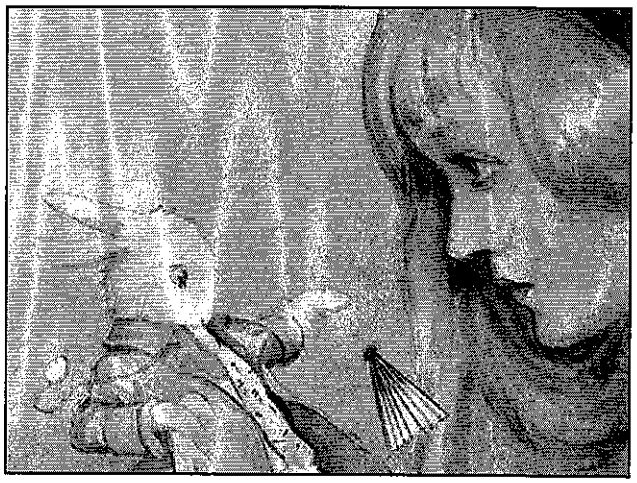
Down the Rabbit Hole

An Excerpt from Alice's Adventures in Wonderland

By Lewis Carroll
1865

Charles Lutwidge Dodgson (1832-1898), better known by his penname Lewis Carroll, was an English writer, mathematician, and Anglican minister. His best known work is Alice's Adventures in Wonderland. *A whimsical and satirical piece, it tells the tale of a young girl who falls into a world of nonsense. As you read, take notes on how Carroll uses point of view to portray a childlike imagination.*

Chapter 1: "Down the Rabbit Hole"



"Alice meets the White Rabbit" by Margaret Winifred Tarrant is in the public domain.

[1] Alice was beginning to get very tired of sitting by her sister on the bank,[1] and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, 'and what is the use of a book,' thought Alice 'without pictures or conversation?'

So she was considering in her own mind (as well as she could, for the hot day made her feel very sleepy and stupid), whether the pleasure of making a daisy-chain would be worth the trouble of getting up and picking the daisies, when suddenly a White Rabbit with pink eyes ran close by her.

There was nothing so very remarkable in that; nor did Alice think it so very much out of the way to hear the Rabbit say to itself, 'Oh dear! Oh dear! I shall be late!' (when she thought it over afterwards, it occurred to her that she ought to have wondered at this, but at the time it all seemed quite natural); but when the Rabbit actually took a watch out of its waistcoat-pocket, and looked at it, and then hurried on, Alice started to her feet, for it flashed across her mind that she had never before seen a rabbit with either a waistcoat-pocket, or a watch to take out of it, and burning with curiosity, she ran across the field after it, and fortunately was just in time to see it pop down a large rabbit-hole under the hedge.

In another moment down went Alice after it, never once considering how in the world she was to get out again.

[5] The rabbit-hole went straight on like a tunnel for some way, and then dipped suddenly down, so suddenly that Alice had not a moment to think about stopping herself before she found herself falling down a very deep well.

1. the bank of a river

Either the well was very deep, or she fell very slowly, for she had plenty of time as she went down to look about her and to wonder what was going to happen next. First, she tried to look down and make out what she was coming to, but it was too dark to see anything; then she looked at the sides of the well, and noticed that they were filled with cupboards and book-shelves; here and there she saw maps and pictures hung upon pegs. She took down a jar from one of the shelves as she passed; it was labelled 'ORANGE MARMALADE', but to her great disappointment it was empty: she did not like to drop the jar for fear of killing somebody, so managed to put it into one of the cupboards as she fell past it.

'Well!' thought Alice to herself, 'after such a fall as this, I shall think nothing of tumbling down stairs! How brave they'll all think me at home! Why, I wouldn't say anything about it, even if I fell off the top of the house!' (Which was very likely true.)

Down, down, down. Would the fall never come to an end! 'I wonder how many miles I've fallen by this time?' she said aloud. 'I must be getting somewhere near the centre of the earth. Let me see: that would be four thousand miles down, I think — ' (for, you see, Alice had learnt several things of this sort in her lessons in the schoolroom, and though this was not a very good opportunity for showing off her knowledge, as there was no one to listen to her, still it was good practice to say it over) ' — yes, that's about the right distance — but then I wonder what Latitude[2] or Longitude[3] I've got to?' (Alice had no idea what Latitude was, or Longitude either, but thought they were nice grand words to say.)

Presently she began again. 'I wonder if I shall fall right through the earth! How funny it'll seem to come out among the people that walk with their heads downward! The Antipathies,[4] I think — ' (she was rather glad there was no one listening, this time, as it didn't sound at all the right word) ' — but I shall have to ask them what the name of the country is, you know. Please, Ma'am, is this New Zealand or Australia?' (and she tried to curtsey as she spoke — fancy curtseying as you're falling through the air! Do you think you could manage it?) 'And what an ignorant[5] little girl she'll think me for asking! No, it'll never do to ask: perhaps I shall see it written up somewhere.'

[10] Down, down, down. There was nothing else to do, so Alice soon began talking again. 'Dinah'll miss me very much to-night, I should think!' (Dinah was the cat.) 'I hope they'll remember her saucer of milk at tea-time. Dinah my dear! I wish you were down here with me! There are no mice in the air, I'm afraid, but you might catch a bat, and that's very like a mouse, you know. But do cats eat bats, I wonder?' And here Alice began to get rather sleepy, and went on saying to herself, in a dreamy sort of way, 'Do cats eat bats? Do cats eat bats?' and sometimes, 'Do bats eat cats?' for, you see, as she couldn't answer either question, it didn't much matter which way she put it. She felt that she was dozing off, and had just begun to dream that she was walking hand in hand with Dinah, and saying to her very earnestly, 'Now, Dinah, tell me the truth: did you ever eat a bat?' when suddenly, thump! thump! down she came upon a heap of sticks and dry leaves, and the fall was over.

2. Latitude is a geographic coordinate that details the north-south position of a point on the earth's surface. Its lines run horizontally, or side-to-side, across the globe.
3. Longitude is a geographic coordinate that details the east-west position of a point on the earth's surface. Its lines run vertically, or up-and-down, across the globe.
4. Alice mistakenly says "antipathies" instead of "antipodes," which is a term used to describe people who live on the opposite side of the world as oneself, often used in reference to Australia and New Zealand from the Northwestern hemisphere.
5. **Ignorant** ***(adjective):*** lacking knowledge, awareness, or understanding of a subject or in general

Alice was not a bit hurt, and she jumped up on to her feet in a moment: she looked up, but it was all dark overhead; before her was another long passage, and the White Rabbit was still in sight, hurrying down it. There was not a moment to be lost: away went Alice like the wind, and was just in time to hear it say, as it turned a corner, 'Oh my ears and whiskers, how late it's getting!' She was close behind it when she turned the corner, but the Rabbit was no longer to be seen: she found herself in a long, low hall, which was lit up by a row of lamps hanging from the roof.

There were doors all round the hall, but they were all locked; and when Alice had been all the way down one side and up the other, trying every door, she walked sadly down the middle, wondering how she was ever to get out again.

Suddenly she came upon a little three-legged table, all made of solid glass; there was nothing on it except a tiny golden key, and Alice's first thought was that it might belong to one of the doors of the hall; but, alas! either the locks were too large, or the key was too small, but at any rate it would not open any of them. However, on the second time round, she came upon a low curtain she had not noticed before, and behind it was a little door about fifteen inches high: she tried the little golden key in the lock, and to her great delight it fitted!

Alice opened the door and found that it led into a small passage, not much larger than a rat-hole: she knelt down and looked along the passage into the loveliest garden you ever saw. How she longed to get out of that dark hall, and wander about among those beds of bright flowers and those cool fountains, but she could not even get her head though the doorway; 'and even if my head would go through,' thought poor Alice, 'it would be of very little use without my shoulders. Oh, how I wish I could shut up like a telescope![6] I think I could, if I only know how to begin.' For, you see, so many out-of-the-way things had happened lately, that Alice had begun to think that very few things indeed were really impossible.

[15] There seemed to be no use in waiting by the little door, so she went back to the table, half hoping she might find another key on it, or at any rate a book of rules for shutting people up like telescopes: this time she found a little bottle on it, ('which certainly was not here before,' said Alice,) and round the neck of the bottle was a paper label, with the words 'DRINK ME' beautifully printed on it in large letters.

It was all very well to say 'Drink me,' but the wise little Alice was not going to do that in a hurry. 'No, I'll look first,' she said, 'and see whether it's marked "poison" or not'; for she had read several nice little histories about children who had got burnt, and eaten up by wild beasts and other unpleasant things, all because they would not remember the simple rules their friends had taught them: such as, that a red-hot poker will burn you if you hold it too long; and that if you cut your finger very deeply with a knife, it usually bleeds; and she had never forgotten that, if you drink much from a bottle marked 'poison,' it is almost certain to disagree with you, sooner or later.

However, this bottle was not marked 'poison,' so Alice ventured to taste it, and finding it very nice, (it had, in fact, a sort of mixed flavour of cherry-tart, custard, pine-apple, roast turkey, toffee, and hot buttered toast,) she very soon finished it off.

'What a curious feeling!' said Alice; 'I must be shutting up like a telescope.'

6. Alice is referring to a collapsible hand-held telescope.

And so it was indeed: she was now only ten inches high, and her face brightened up at the thought that she was now the right size for going through the little door into that lovely garden. First, however, she waited for a few minutes to see if she was going to shrink any further: she felt a little nervous about this; 'for it might end, you know,' said Alice to herself, 'in my going out altogether, like a candle. I wonder what I should be like then?' And she tried to fancy what the flame of a candle is like after the candle is blown out, for she could not remember ever having seen such a thing.

[20] After a while, finding that nothing more happened, she decided on going into the garden at once; but, alas for poor Alice! when she got to the door, she found she had forgotten the little golden key, and when she went back to the table for it, she found she could not possibly reach it: she could see it quite plainly through the glass, and she tried her best to climb up one of the legs of the table, but it was too slippery; and when she had tired herself out with trying, the poor little thing sat down and cried.

'Come, there's no use in crying like that!' said Alice to herself, rather sharply; 'I advise you to leave off this minute!' She generally gave herself very good advice, (though she very seldom followed it), and sometimes she scolded herself so severely[7] as to bring tears into her eyes; and once she remembered trying to box[8] her own ears for having cheated herself in a game of croquet she was playing against herself, for this curious child was very fond of pretending to be two people. 'But it's no use now,' thought poor Alice, 'to pretend to be two people! Why, there's hardly enough of me left to make one respectable person!'

Soon her eye fell on a little glass box that was lying under the table: she opened it, and found in it a very small cake, on which the words 'EAT ME' were beautifully marked in currants.[9] 'Well, I'll eat it,' said Alice, 'and if it makes me grow larger, I can reach the key; and if it makes me grow smaller, I can creep under the door; so either way I'll get into the garden, and I don't care which happens!'

She ate a little bit, and said anxiously to herself, 'Which way? Which way?', holding her hand on the top of her head to feel which way it was growing, and she was quite surprised to find that she remained the same size: to be sure, this generally happens when one eats cake, but Alice had got so much into the way of expecting nothing but out-of-the-way things to happen, that it seemed quite dull and stupid for life to go on in the common way.

So she set to work, and very soon finished off the cake.

7. **Severe** ***(adjective):*** very great, intense, or harsh
8. to smack or hit
9. a small seedless raisin

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: What does the phrase "away went Alice like the wind" most likely mean, as used in paragraph 11?
   - A. Alice becomes invisible.
   - B. Alice moves very quickly, possibly running.
   - C. Alice's movements become light and airy.
   - D. Alice falls fast through the empty air.

2. PART B: Which of the following phrases best supports the answer to Part A?
   - A. "Alice was not a bit hurt"
   - B. "all dark overhead"
   - C. "the White Rabbit was still in sight"
   - D. "not a moment to be lost"

3. Which of the following statements best describes how the narrator's point of view influences the text?
   - A. It reveals both Alice's inner thoughts and past experiences to portray her as bright and imaginative yet sometimes silly.
   - B. It describes Alice's actions and words in detail to portray her as thoughtless and uncaring.
   - C. It speaks from Alice's own perspective to help the reader better understand her motivations and experiences.
   - D. It shows the perspective of an outside character to reveal Alice as a clever, curious hero

4. How does Alice respond to falling down an impossibly long rabbit hole?

5. Why does the author most likely end the first chapter with Alice eating the whole cake?
   A. To demonstrate she hasn't learned from her previous actions.
   B. To emphasize the absurdity of Wonderland, in which people do the same things over and over but expect different results.
   C. To add to the sense of nonsense or child-like logic of both Wonderland and Alice.
   D. All of the above

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. Alice's Adventures in Wonderland is known for its portrayal of a child's logic, compared to that of the adult. How would you describe Alice's reasoning skills? Do they seem sound or silly, and why? Cite evidence from the text in your answer.

2. Imagination and curiosity are what land Alice in Wonderland. Do you think this passage is advocating for these traits, especially in children?

3. In the context of this text, why should we value our youth? Cite evidence from this text, your own experience, and other literature, art, or history in your answer.

7th Grade NFT Math Day 76

Name _____ Date _____ Class _____

LESSON 5-1

Percent Increase and Decrease

Reteach

A change in a quantity is often described as a percent increase or percent decrease. To calculate a percent increase or decrease, use this equation.

$$\text{percent of change} = \frac{\text{amount of increase or decrease}}{\text{original amount}} \cdot 100$$

Find the percent of change from 28 to 42.

- First, find the amount of the change. $42 - 28 = 14$
- What is the original amount? 28
- Use the equation. $\frac{14}{28} \cdot 100 = 50\%$

An increase from 28 to 42 represents a 50% increase.

Find each percent of change.

1. 8 is increased to 22

   amount of change: $22 - 8 =$ _____

   original amount: _____

   _____ • 100 = _____%

2. 90 is decreased to 81

   amount of change: $90 - 81 =$ _____

   original amount: _____

   _____ • 100 = _____%

3. 125 is increased to 200

   amount of change: $200 - 125 =$ _____

   original amount: _____

   _____ • 100 = _____%

4. 400 is decreased to 60

   amount of change: $400 - 60 =$ _____

   original amount: _____

   _____ • 100 = _____%

5. 64 is decreased to 48

   _____

6. 140 is increased to 273

   _____

7. 30 is decreased to 6

   _____

8. 15 is increased to 21

   _____

9. 7 is increased to 21

   _____

10. 320 is decreased to 304

    _____