

School _____ Student _____ Team _____

Daily Activities and Record Sheet - Packet 2

To access this packet as a PDF with live links, go to www.vigoschools.org, "Click here for instructional packets".

Each remote learning day allows students to complete work assignments at home as opposed to attending a day at school. Keep this record sheet and completed student work until collection procedures are determined. Instructional packets will be graded according to effort, participation, and completion. These activities cover many subject areas and support social and emotional learning.

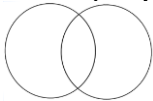
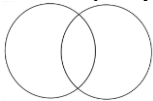
Your child may use a book of choice (book from home, library book, textbook, electronic resource, etc.). Select grade level appropriate reading material and read for 20 minutes, complete the **Daily Reading Log**, and then choose **two** Reading/Writing activities and **one** Math lesson daily (Day 1 or Day 2). Record the activities and lessons on the **Daily Log of Remote Learning**.

Daily Reading Log Name of Reading Material Selected	Parent/Guardian Initials for Completion	Date(s) Completed

List activities completed on this **Daily Log of Remote Learning**. If your child's teacher has given additional assignments, you may list this work as well.

Daily Log of Remote Learning ***Use the back side of this page for additional records if needed***	Parent/Guardian Initials for Completion	Date(s) Completed
Example List of an Activity Completed: (Bolded activity name from packet)	JN	5/4/2020

This page left blank intentionally for recording additional records or use as scratch paper.

<p style="text-align: center;">Reading and Writing Activity Descriptions</p>	<p style="text-align: center;">Parent/ Guardian Initials for Completion</p>	<p style="text-align: center;">Date(s) Completed</p>
<p>Character Award Winner (Honesty, Leadership, Respect, Citizenship) You have probably heard many Character Award Nominations read over the announcements, in an assembly, or during B.U.G. Club over the years. You might have even been nominated for one yourself! Now it is your turn to do the nominating. Choose 4 character traits that are most important to you (respect, kindness, flexibility, generosity, responsibility, trustworthiness, sportsmanship, assertiveness), and think about the people in your life who are the best representatives of those traits. Write a Character Award Nomination for each trait you chose that explains who in your life deserves to win that Character Award and why. <u>Bonus:</u> If you are able to, present your nomination to your nominee. You can even create your own certificate!</p>		
<p>History Now (Honesty, Perseverance) Historical fiction features events and settings that are typical of a particular period in history. Characters in historical fiction speak and act like the people from a particular time and place in the past. Historical fiction often includes real as well as made-up people and events. For example, a story with made-up main characters might mention an actual historical figure, such as a president. Imagine it is 50 years in the future. Write a short, historical fiction narrative about life in 2020.</p>		
<p>Flip the Script Think of a short scene you love. It could be from a book, TV show, movie, YouTube video, or other form of social media. Read or watch the scene a few times and pay close attention to how the character or characters speak, what the setting is, and the dialogue used. Now, throw the characters into a whole different setting and rewrite the scene! Maybe Darth Vader and Luke Skywalker are no longer in space but on a farm in Texas. Perhaps Greg Heffley is now writing in his diary (JOURNAL) from one of the Original Colonies in 1776. Rewrite the lines of dialogue from that scene so the dialogue matches the setting. Keep the plot the same! Make sure you punctuate and paragraph your dialogue correctly so it's easy to follow.</p>		
<p>Silent TV</p> <ul style="list-style-type: none"> Find a TV show (one that you are allowed to watch, of course!) and watch 5 minutes of it with the sound turned off. Write down a summary (3-5 sentences) of what you think that show is about. Then turn on the TV and read the summary of that show. How close was your summary to the real one? Find a different show and repeat the process. How accurate was your summary? Now try it with another show but this time turn the sound up. After 5 minutes, write a summary of the plot. Check the guide for that show. Was this summary more accurate? 		
<p>Home/School Compare and Contrast (Responsibility)</p>  <p>Draw a Venn diagram like this:  Make it big enough that you can write several phrases in it. Think about all the ways learning at home is the same as learning at school. Write those ideas in the middle section. Now think of all the differences between home learning and school learning and write them in the big sections of the circles. Show your Venn diagram to a sibling, parent, or grandparent. See if they can think up even more ways to compare and contrast home/school. Add their ideas to the diagram. Using your notes to produce evidence, write an essay discussing which you prefer, learning at home or at school.</p>		
<p>Correct The Paragraph On a separate piece of paper, rewrite the paragraph correcting all the errors. There may be spelling, punctuation, capitalization, or grammar errors.</p> <p>At the start of school Dora was afraid of her new Teacher Mrs. Davis seemed nice but she had so many rules for the class to follow Scare someone to pieces as the school year continued Dora began to understand how the Teacher came up with the rules The rules were their so students would be respectful of themselves and each other rules are important in society By the end of the year Dora thought Mrs Davis was the best Teacher she ever had</p>		
<p>Yesterday vs. Today (Caring, Perseverance) https://www.poetryfoundation.org/poems/45474/o-captain-my-captain</p> <ul style="list-style-type: none"> Read "Oh Captain, My Captain", a poem by Walt Whitman about a captain who dies just as his ship has reached the end of a stormy and dangerous voyage. The captain represents Abraham Lincoln, who was assassinated just as the Civil War was ending. Because of Covid-19, we are currently in the midst "of a stormy and dangerous voyage." Thinking of "the captain" as being doctors and nurses on the front line some of which have lost their lives, recreate this poem with them as inspiration. You may use lines from the poem as you relate our current situation to that of the war. 		

<p>Is Everlasting Life Something We Would Want? (Responsibility, Perseverance, Fairness)</p> <ul style="list-style-type: none"> • “Don't be afraid of death; be afraid of an unlive life. You don't have to live forever, you just have to live.” Natalie Babbitt's <i>Tuck Everlasting</i>. • You have all read <i>Tuck Everlasting</i>. Read the article about extending our life span. Using the quote above from Angus Tuck, state your opinion about living longer (or even <i>forever</i>). Use evidence from the article and <i>Tuck Everlasting</i> to make your point. https://newsela.com/read/people-lifespans/id/22660/ • If you don't have access to the article, what do you think it would be like for the Tuck's having the power to live forever during this coronavirus pandemic? How would it be positive? How would it be negative? Write your thoughts about being Angus, Mae, Miles, or Jesse Tuck in the spring of 2020. 		
<p>Journaling (Honesty)</p> <p>Whether we're kids or adults, this is a time worth documenting, so write about it daily. Make a list of things that are different between today and yesterday. You can write it out as a detailed list. You can turn it into a what's in/what's out list, like the kind that you see around New Year's. You can write daily poetry. You can do a drawing journal - drawing items that are important to you (ex: your dog) or items that remind you of the day's events (ex: a podium representing daily presidential conferences) Journal about anything that will help you document this moment in time. You are creating a piece of history.</p>		
<p>Emulate An Author (Aspiration)</p> <p>https://www.nbclearn.com/writers-speak-to-kids/cuecard/61694</p> <ul style="list-style-type: none"> • Douglas Florian, author and illustrator of many children's poetry books, discusses what makes a good poem, how he plays with words, and what he likes best about writing. This video is part of the NBC Learn original series, "Writers Speak to Kids." <p>https://www.nbclearn.com/writers-speak-to-kids/cuecard/60817</p> <ul style="list-style-type: none"> • Jeff Kinney, author and illustrator of the <i>Diary of a Wimpy Kid</i> series, discusses his writing process and how he creates characters. This video is part of the NBC Learn original series, "Writers Speak to Kids." • These two authors have vastly different styles even though they are both illustrators. Listen to or read both interviews and choose ONE to copy the stylistic elements that the writer uses. Attempt a poem with an illustration made from something around you as Mr. Florian does or give Greg Heffley an awkward adventure that you have experienced yourself. 		
<p>Unsolved Mysteries (Paired Text) (Citizenship, Responsibility)</p> <p>https://www.readworks.org/article/Unsolved-Mysteries/f86c241f-4cdd-48e4-96c3-669c7c0d5974#!questionsetsSection:2663/contentSection:e0751c9b-0140-4997-8502-90f0a67354ab/articleTab:questionsets/</p> <p>These two articles come from ReadWorks.org. If you have online access you will read two very suspenseful stories that are similar in theme. Then on a blank piece of paper, answer the following questions and complete the writing activity using information from both articles.</p> <ol style="list-style-type: none"> 1. What is similar about what happens at the end of “An Unexpected Trip” and what happens at the end of “The Run”? 2. Why might an author provide clues about what is happening in a story instead of simply explaining it? Find two examples of this (one in each story) and explain how this helps the plot of the story. 3. “The Run” is eerily close to what we as a society have recently been enduring. <u>Compare</u> and <u>contrast</u> actual events occurring in our world today to events that occurred in “The Run”. Can you include anything in your writing that compares or contrasts to “An Unexpected Trip” with the events in our world today? 		
<p>Lessons In Sports (Success, Responsibility, Aspiration, Leadership, Perseverance, Fairness)</p> <p>https://newsela.com/read/sports-lessons-coronavirus/id/2001007092/</p> <ul style="list-style-type: none"> • You have probably had a sport delayed or canceled because of Covid-19. Sports are important for a variety of reasons. You get exercise, make friendships, learn skills, but most importantly you learn discipline. This article states that in sports you learn to pay attention, be a good teammate, and deal with disappointment. • Do you have an experience that is similar to or related to the one described in the text? (If you don't have access to the article online, just refer to your own knowledge of your sport in regard to paying attention, being a good teammate, and learning to deal with disappointment.) Write a narrative (a story) that describes an experience that you've had with one (or all) of those things. Include relevant details and make sure your story is clearly structured. 		
<p>Family Writing/Drawing Activity (Honesty, Respect)</p> <p>Get the members of your family together in one room. Everybody gets two pieces of paper. On page one, describe a character. Please include the following:</p> <ol style="list-style-type: none"> 1. What your character looks like (big, pink, hairy, human) 2. What your character is wearing 3. Your character's favorite food, sport and hobby 4. Your character's favorite expression 5. Your character's current problem 6. Now everyone passes that paper to the right. On your blank page, draw the character you were handed. How did it feel to have someone else bring your character to life? 7. Another way is to do this prompt with a friend. It's a great way to get in touch especially since you are no longer seeing your friends each day. Send the results back and forth by email or text with the help of a parent or guardian. 		

<p>Graphic Novel-Celebrating Differences (Citizenship, Respect, Caring, Perseverance, Fairness) https://choices.scholastic.com/issues/2019-20/020120/she-s-celebrating-differences.html</p> <ul style="list-style-type: none"> This resource introduces you to Jordan Reeves, now 14, who has a disability due to being born with one functional arm. She developed an arm with a 3D printer that looked like a sparkly purple unicorn that sprayed glitter. One internet post by her mom turned her into a sensation that has allowed her to become an activist for people with disabilities. She has worked with Mattel to create a Barbie with a prosthetic limb and has inspired the "Marvel's Hero Project" that has turned people with disabilities into superheroes in graphic novels. Create your own Graphic Novel (one page minimum) using the template provided in the link about a superhero in your life. If you can't access the link, use a blank page with six comic boxes. What does that person do that makes him/her a superhero in your eyes? Illustrate that in a graphic novel format. 		
<p>Get Gif-Y With It! (Success, Aspiration, Perseverance) https://action.scholastic.com/issues/2019-20/030120/he-makes-gifs-for-a-living.html</p> <ul style="list-style-type: none"> Can you believe that someone is actually lucky enough to make GIFs for a living? Well, Danny Chang is that person and is introduced in this article. He said a good GIF "has to be short and look good as it loops - or plays on repeat." (<i>Activities can be completed with or without reading the article in the link.</i>) Create a GIF using four frames (as Andrew Chang did in the article). You can take pictures, videos, or draw them. What action is happening in the GIF and in what situation would you use it? Share it with someone and write about their reaction. OR Get that job! In the article, Danny Chang explains he's good at his job because he's a people person, he can be trusted, he works hard, he listens, and he takes in information. What are five skills or personality traits that you have that would make you good in Mr. Chang's business of creating GIFs? Make a video to tell Danny why he should hire you as his assistant. Let him know which skills and traits you share with him, and which new skills you can bring to the team! 		
<p>Lolly, Lolly, Lolly Get Your Adverbs Here https://www.youtube.com/watch?v=xYTknwQA_ys&feature=youtu.be Watch the School House Rock video about adverbs and answer all of the following questions.</p> <ul style="list-style-type: none"> What is an adverb? List 4 adverbs that were used in this video. <p>(If you don't have access to the video, complete this question only.)</p> <ul style="list-style-type: none"> Write a sentence with each adverb listed below. Let's try using the number of words based on our age. If you're 12 - then a 12 word sentence. If you're 14 - then a 14 word sentence. We need to be descriptive writers. Pay attention to conventions. <i>Abnormally, gratefully, fondly, joyfully, frantically, correctly, positively</i> 		
<p>Parts of Speech Poem Think about all parts of speech. Show your poetic ability and write 3-5 parts of speech poems. A parts of speech poem has five lines.</p> <ul style="list-style-type: none"> Line 1 has an article and one noun Line 2 has one adjective, one conjunction, and another adjective Line 3 has a verb, a conjunction, and another verb Line 4 has one adverb Line 5 has one preposition and one object of the preposition <p style="text-align: center;">Example: The tree Gnarled and spooky Creaking and groaning Eerily Behind me</p>		
<p>Triangular Sentence Using the parts of speech listed, write 3-5 triangular sentences. Can you write one about the Coronavirus?</p> <p style="text-align: center;">Noun Verb (Does what?) Adjective (What kind?) Adverb (How does it do it?) Prepositional phrase (Where does it do it?) Write the whole sentence. (Add an article)</p> <p style="text-align: center;">Ball Ball bounces Orange ball bounces Orange ball bounces loudly Orange ball bounces loudly in the gym The orange ball bounces loudly in the gym.</p>		

This is Using Voice (Said in the voice of the intro to *The Voice*)

The author's voice refers to a writer's style, the quality that makes their writing unique. A character's voice is the speech and thought patterns of characters in a narrative. The latter voice is one of the most vital elements of a story for readers of fiction.

<https://www.storylineonline.net/books/arnie-the-doughnut/>

- If you have access, listen to *Arnie the Doughnut* by Laurie Keller as read by Chris O'Dowd. This author takes an inanimate object (a doughnut) and gives it a voice. Arnie's attitude changes from being excited at being chosen by Mr. Bing to becoming terrified when he realizes what he was chosen for - to be eaten. Mr. Bing and Arnie discuss other uses for Arnie so that he can be saved which proves to be very difficult. Finally Mr. Bing comes up with a great idea...he can't have a pet where he lives, so Mr. Bing keeps Arnie as his "dog doughnut" for companionship. Crazy, huh? Because of the voice that Ms. Keller gives to Arnie, you feel really bad for him because the voice makes him so real.
- Pick an inanimate object in your home (a fork, a statue, a key chain, etc.). What voice could you give to it? What adventure could it go on? Write a narrative OR create a picture book to share with a younger sibling about this object.

Counting Isn't Only Important In Math (Citizenship, Responsibility)

<https://newsela.com/read/why-census-counts-everyone/id/2001007238/write?collection=339>

- Unlike in "The Phantom Tollbooth" by Susan Nanus drama you may have studied in 6th grade where the Senses Taker attempts to take Milo's senses to distract him by attempting to get information from him like, "When you were born, where you were born, why you were born, how old you are now, how old you were then, how old you'll be in a little while..." (p.512 PH Lit) , here REALLY is a CENSUS TAKER (note the spelling). Now it can basically be completed online so that you don't have to speak to a random person at your doorstep. They don't give up easily because there is a need for people to be counted. The Census information collected has a true purpose. It can help a state to determine how many seats it will have in congress or how to divide up federal money to be used efficiently for the state's population. Your parents/guardians have received information about filling out the Census. Check with them to see if you can look at the information asked of them in the Census to use as a possible reference for your writing.
- Read the article in the link provided, if possible. Describe what you think the author's purpose was for writing the article (inform, persuade, entertain) and whether you think the author was successful.
- If you can't access the article, write a persuasive piece indicating whether you believe it is important to have an accurate count of citizens in the United States. Give evidence to back up your reasoning. You may talk to adults in your household as a reference.

Meet Author Ka Holt (Author of *House Arrest*, a verse novel) (Perseverance)

https://www.youtube.com/watch?v=7OHMaowH_Sc&feature=youtu.be

- Verse novels are very popular. They're written in short poems to complete the plot of a story. In this video Ms. Holt reads from her verse novel *House Arrest* (Doesn't it feel like the Coronavirus has done this to us?). Timothy is the main character of this book who gets caught for stealing a credit card to buy medicine for his sick brother. For probation, he has to journal about how his mistake of stealing was wrong - even though he doesn't think it was wrong.
- Ms. Holt discusses how she writes in verse and how she uses the blank space of the page. She uses it to create rhythm. She uses it to show you how Timothy is feeling. With short lines, she's making the pace go faster. Sometimes she separates the words to create a strong feeling Timothy is trying to make. ("So. Much. Trouble. If. We. Get. Caught! But we didn't get caught.")
- If you have access to the link, listen for figurative language in what she's reading. Listen for hyperbole (exaggeration), assonance (repetition of vowel sounds), metaphors, similes. How are they used? Stop the recording, back it up, and listen to it twice or three times to get the feel of how this author is using language.
- If you do or you don't have access, no problem. We're all poets! Write your own verses about being stuck in your home during this historic time. It's kind of like being on house arrest. Write about the good, the bad, and the ugly. This could be a time to really put your feelings on paper instead of keeping them inside. Use figurative language in your writing. Play with words and sentence formation (Remember, you have poetic license - no rules! How many times does your English teacher tell you that?)

I Need A Break

- We are all venturing into this new world of learning online. We can't sit down with our packets or our device and complete everything at once. Throughout a normal school day you don't sit in one spot and do a week's worth of assignments at one time. There are a lot of breaks built into our school day. To take a break at home we may get up from our workspace and step outside for some fresh air to give us a break.

https://newsela.com/read/ela-favorite-five-minute-breaks/id/2001007401/write?utm_source=aotd&utm_medium=email&utm_campaign=test-1&utm_content=ela-aotd-1&collection=339

- If you have access, read the attached link from newsela. Make and support a claim about why someone who is learning remotely should read this story. What makes this story worth reading during this time in our lives. Support your response with specific details from the story.
OR
- If you do not have access, come up with five ideas that a student could do around the house to take a five-minute break. If you've read the story, you may not use one listed. Be creative. What could you do on your "passing period"? Write the title "Get Fresh Air" and then in one paragraph describe what that looks like.

It's In The Mail (Caring)

- Now is a great time to write letters to loved ones or friends who you rarely get to see. Send that letter through "snail mail" and ask that they respond to you in the same way. Of course, if you're writing to someone you rarely see, you'll want to make sure that your writing mechanics and letter format are on point. Here is a letter that a boy named Daniel sent to his friend Nick inviting him to his birthday party. There are too many errors. Daniel will take one look at this letter and be frightened away because of Nick's lack of writing skills. On a separate sheet of paper, rewrite the letter (in friendly letter format) making all corrections in capitalization, punctuation, paragraphing, and spelling errors.
- dear daniel u r invited 2 celebr8 my 13th birthday with my family + me We will b camping overnight at bat cave camp in shakamak state park We'l hike swim and fish at the park. We will leave at 10.00 am from my house at 9231 cypress road on satruday the 16th ur parents can pick u up at 6-00 pm at my house on sunday the 17th or u can call them for a ride home aftr we get back We will have a tent food and cooking gear. U will need to birng the following items a sleeping bag a flashlight extra batteries hiking boots a cap insect repellent sunscreen an all you're clothing. If u have a fishin poll you mite want to bring it along? Please call 555-3020 to let us no if u will b able 2 come l shure hope u can you're Friend Nick.
- Ask your parent/guardian for a blank envelope. If you don't have one, draw an example of one on your paper. Address the envelope with your actual return address in the appropriate place while using this FAKE address for Daniel whose full name is Daniel Jones: 853 walt disney way, orlando, FL 32771 (Do not actually send it or it will be returned to sender saying this address does not exist.) Draw a pretend stamp where the stamp belongs.

Hope Is The Thing With Feathers (Aspirations)

- In these trying times, we need hope. We need hope for those that are sacrificing daily due to this terrible virus. We need hope that our home, our school, our city, our nation, and our world will soon return to normal. Read this poem and answer the questions on a separate sheet of paper.
 1. What is the theme of this poem?
 2. Read lines 6-8. What does the word "abash" most clearly mean, based on these lines?
 3. Read lines 6-12. What does "it" refer to in the last line?
 4. According to the poet, where does hope live?
 5. Read lines 4-8. Based on these lines, what is an important characteristic of hope, or "the little bird"?
 6. Read lines 9-12. Describe the speaker's personal experience with hope. Use evidence from the poem to support your description.
 7. Following the format of this poem (4 line stanza, a b a b rhyming pattern) write one stanza about hope through your eyes.

Hope is the thing with feathers
That perches in the soul,
And sings the tune without the words,
And never stops at all,

And sweetest in the gale is heard; 5
And sore must be the storm
That could abash the little bird
That kept so many warm.

I've heard it in the chilliest land,
And on the strangest sea; 10
Yet, never, in extremity,
It asked a crumb of me.

Pick Your Favorite Song

- Look up the lyrics to your favorite song. You'll need to actually SEE the lyrics for this assignment (on a device or print them out). See what poetic devices that you can find. Look for at least **three different examples** of these devices such as similes, metaphors, onomatopoeia, alliteration, imagery, assonance, consonance, hyperbole, syncope or repetition. In three fully developed paragraphs, write about these lyrics.
- **Paragraph one:** Discuss the name of the song and the artist and why this song is the one you chose for this assignment. What is the theme of this song? How do you come to this conclusion? What is the mood of this song?
- **Paragraph two:** Tell about the three different poetic devices that you found. List the line from the lyrics and what type of poetic device it is (simile, metaphor, etc.). How does that line contribute to the overall theme of this song? Make sure to discuss each one separately within this paragraph. Remember, you should have found three different types of devices (ex: simile, hyperbole, alliteration).
- **Paragraph three:** What is your overall reaction to this song? Why is it your favorite? What have you discovered about the song now that you have studied it and thought about the lines?

<p>Found Poetry (Citizenship)</p> <ul style="list-style-type: none"> Using old magazines, newspapers, food boxes, junk mail, or any other material with printed words, make your own found poems. Cut out at least five words for the following parts of speech: nouns, proper nouns, pronouns, verbs, adverbs, adjectives, prepositions, and conjunctions. Use the words you cut out to create as many poems as you can. ***GET PERMISSION BEFORE YOU CUT ANYTHING!!!!*** Hint: Try a haiku. They are only three lines with 5 syllables in the first line, 7 in the second, and 5 in the third. Remember, haiku generally emphasizes simplicity and focuses on images in nature. OR https://newsela.com/read/2020-olympics-postponed-coronavirus/id/2001007234/ Read this article from Newsela about the postponement of the Tokyo Summer Olympics. Highlight significant words in the article. Make sure you have a good sampling of all parts of speech. Create a Found Poem from the beginning to the end that truly captures the theme of this article. Remember, with poetry you have poetic license. You need not worry about your typical convention rules, but the theme from the article needs to be evident. You may be able to do this with five words or twenty-five+ words. Be creative. 		
<p>Word Art (Concrete Poetry)</p> <ul style="list-style-type: none"> Choose one noun, one verb, one adjective, and one adverb to illustrate using the meaning of the word. For example, if your noun is "mountain," your letters might all be tall, pointed, angular, and jagged. You might draw people or goats climbing up the sides of them, snow on top, or lakes and trees on the bottom. Bonus: Try an antonym edition! 		
<p>Social Media Manager (Success)</p> <ul style="list-style-type: none"> There is a place for social media/text lingo...in social media and texting. There is no place for this lingo in the rules of standard English. Think of this as you complete this task. <i>Congratulations!</i> You are now the social media manager for your favorite celebrity. They hired you because they want help making their social media look more professional. Below are some things they've written on their social media in the past. Rewrite them so they are not only correct but sound professional too! <ol style="list-style-type: none"> dis my BFF 4 LYFE we ben thru sum TUFF STUFF but we 2gether thru THIC N THIN!!!! TIRED!!!! up l8 workin' on new thangz 4 mi FANS! #onthe grind #hustle just landed n paris france so beautiful bout to go c wut the eiffel tower like but dunno 'cuz i ain't about them HITES!!!! hahahaha for real tho wish me luck. Find an actual social media post with obvious mistakes and write it according to the rules of standard English. Was this lingo used for a reason?(Reference where you found it.) 		
<p>Between The Lines</p> <ul style="list-style-type: none"> Writers know the smallest things can make a BIG difference in writing, and depending on how it's written, the same word can mean or imply many different things. For example: "OKAY!!!" "Okaaay...." "Okay." "Okay?" "Okay?!" Use each piece of dialogue above in a different sentence that goes along with how it's written. Bonus: Illustrate each sentence as well! 		
<p>1st Person/3rd Person Family Stories (Caring)</p> <ul style="list-style-type: none"> Think of a fun family story that included you. Write the story the way you remember it. Be sure to add LOTS of details that the reader can picture. Now you have a good story told from the 1st person point of view. Now ask someone else in your house (or call someone on the phone) to tell you a fun family story that you were NOT there to see. Ask questions to make sure you understand the details of the story they are telling you, then write down this story. Now you have a story told from the 3rd person point of view. Share these stories with your family, in person or on the phone. 		
<p>Drama Llama</p> <ul style="list-style-type: none"> Many of us have dreamed about being on television or the star on a movie, but do you have what it takes? Actors must be bold in their actions and bold in their speaking to draw and keep the attention of their audiences. They must be...DRAMATIC! Choose any reading material in your household. It can be anything, from your favorite novel to a cereal box. For 10 minutes, read it out loud as dramatically as you can. Change the pitch and volume of your voice, make facial expressions, use hand gestures...whatever it takes to bring the drama! The crazier you think you look and sound, the better. Bonus: If you have Internet access, check out the following YouTube videos to psych yourself up. Channel: C.A. House Music <ul style="list-style-type: none"> Video Title: A Dramatic Reading of Duck Tales Theme https://www.youtube.com/watch?v=cmWuQq7-ll4 Video Title: A Dramatic Reading of Never Gonna Give You Up by Rick Astley https://www.youtube.com/watch?v=orC7_KCFrBq 		

“The Answer To Everything Is No” Day

- We all know about “Crazy Hair” Day or “Favorite Sports Team” Day. Imagine a normal school that turns into “The Answer to Everything is No” Day. From the minute you wake up, every question you ask your family, your teachers, your friends, your bus driver, the cafeteria ladies -- the answer is always “No!” Use your imagination and write this story, telling about your day. Be careful with your punctuation. Remember, each time someone different speaks, you need to indent for a new paragraph. Although dialogue is essential to this story, be careful using ONLY dialogue. Think of the elements of a story: Exposition, Rising Action, Climax, Falling Action, Resolution, characters, conflict, setting, plot, and theme.

Stretching The Truth With Hyperbole

Sometimes it's fun to exaggerate. Hyperbole is a kind of figurative language where the author purposely stretches the truth to make the story more fun to read. (Examples: This bag weighs a ton. OR These shoes are killing me.) On a lined piece of paper or in a notebook, write a simple paragraph about what you did yesterday, even if it was nothing exciting. Be sure to skip a line each time you write on a new line. Now go back and see if you can find 4 -5 places to add in a hyperbole. Don't be afraid to tell a whopper! Now read it out loud and enjoy how much more fun it sounds.

Ex: (Without hyperbole) I walked to the mailbox yesterday. (With hyperbole) My mailbox was a million miles away, but I walked there anyway.

Math Lessons

Indiana Glencoe Math Course 2 - Each lesson is a two day activity.

Math activities are listed below in alignment with the district's math curriculum, pacing guide, and have been chosen because of their importance to prepare students for the next grade level. Some of these lessons may have been completed earlier in the school year. Since they have been identified as important topics to prepare your child for the next grade level, it is a great practice to review and complete the activities again. In an effort to help the teacher with their tracking, the lessons are named according to where they fall within the curriculum. **Students can choose any lesson and complete the activities within that lesson.** Parents can list math activities on the **Daily Log of Remote Learning** on the first page of this packet.

Below each lesson title are links to tutorial videos from Khan Academy and YouTube introducing the concept covered in the lesson. Screenshots from the textbook are included for reference or for use, if you do not have your textbook at home.

Day 1: Watch the videos and begin working on the Introductory Page, Examples, and Guided Practice parts of the lesson. Do all of the problems in the Guided Practice. Students may do their work on a separate sheet of paper if needed.

Day 2: Continue by working on the Independent Practice, H.O.T. Problems (Higher Order Level Thinking) and Extra Practice parts of the lesson. **Your goal is to complete 20 problems total over the course of both days.** For example, if a lesson has more than 20 problems, students may choose 20 of their choice. If a lesson has less than 20 problems, students are to complete them all to the best of their ability. Students may check their answers at the end of the packet.

This space left blank intentionally for use as scratch paper.

Lesson 7-4 Scale Drawings - A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1: <https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-geometry/cc-7th-scale-drawings/v/scaled-drawings-worked-examples>

Video 2: <https://www.youtube.com/watch?v=rtkj5KNTD0w>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

Work Zone

Use a Scale Drawing or a Scale Model

Scale drawings and scale models are used to represent objects that are too large or too small to be drawn or built at actual size. The **scale** gives the ratio that compares the measurements of the drawing or model to the measurements of the real object. The measurements on a drawing or model are proportional to the measurements on the actual object.

Example

1. What is the actual distance between Hagerstown and Annapolis?

Step 1 Use a centimeter ruler to find the map distance between the two cities. The map distance is about 4 centimeters.

Step 2 Write and solve a proportion using the scale. Let d represent the actual distance between the cities.

map	→	1 centimeter	=	4 centimeter	←	map
actual	→	24 miles	=	d miles	←	actual

 $1 \times d = 24 \times 4$

 $d = 96$


Cross products

Simply

The distance between the cities is about 96 miles.

Got it? Do this problem to find out.

a. On the map of Arkansas shown, find the actual distance between Clarksville and Little Rock. Use a ruler to measure.



Example

2. A graphic artist is creating an advertisement for this cell phone. If she uses a scale of 5 inches = 1 inch, what is the length of the cell phone on the advertisement?

Write a proportion using the scale. Let a represent the length of the advertisement cell phone.

advertisement	→	5 inches	=	a inches	←	advertisement
actual	→	1 inch	=	4 inches	←	actual

 $5 \cdot a = 1 \cdot 0$

 $20 = a$

Cross products

Simply

The length of the cell phone on the advertisement is 20 inches long.

Got it? Do this problem to find out.

b. A scooter is $3\frac{1}{2}$ feet long. Find the length of a scale model of the scooter if the scale is 1 inch = $\frac{3}{4}$ feet.

Find a Scale Factor

A scale written as a ratio without units in simplest form is called the **scale factor**.

Example

3. Find the scale factor of a model sailboat if the scale is 1 inch = 6 feet.

$\frac{1 \text{ inch}}{6 \text{ feet}} = \frac{1 \text{ inch}}{72 \text{ inches}}$

Convert 6 feet to inches.

 $= \frac{1}{72}$

Divide out the common units.

The scale factor is $\frac{1}{72}$.

Got it? Do this problem to find out.

c. What is the scale factor of a model car if the scale is 1 inch = 2 feet?

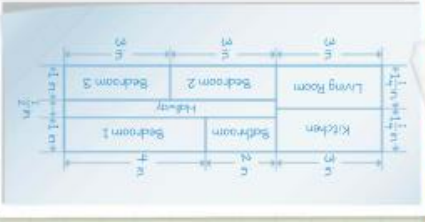
576 Chapter 7 Geometric Figures

Lesson 4 Scale Drawings 577



Example

4. A floor plan for a home is shown at the left where $\frac{1}{2}$ inch represents 3 feet of the actual home. What is the actual area of bedroom 1?



Length of Bedroom 1.

$$\frac{3 \text{ in.}}{3 \text{ ft}} = \frac{4 \text{ in.}}{w} \quad \leftarrow \text{floor plan} \rightarrow \text{actual}$$

$$\frac{1}{2}w = 12 \quad \text{Find cross products.}$$

$$w = 24 \quad \text{Divide each side by } \frac{1}{2}$$

So, the area of bedroom 1 is 24×6 or 144 square feet.

Width of Bedroom 1.

$$\frac{3 \text{ in.}}{3 \text{ ft}} = \frac{1 \text{ in.}}{x} \quad \leftarrow \text{floor plan} \rightarrow \text{actual}$$

$$\frac{1}{2}x = 3 \quad \text{Find cross products.}$$

$$x = 6 \quad \text{Divide each side by } \frac{1}{2}$$

Get it? Do this problem to find out.

d. What is the actual area of bedroom 3?

Guided Practice

1. On a map, the distance from Akron to Cleveland measures 2 centimeters. What is the actual distance if the scale of the map shows that 1 centimeter is equal to 30 kilometers? (Example 1)

2. An engineer makes a model of a bridge using a scale of 1 inch = 3 yards. The length of the actual bridge is 50 yards. What is the length of the model? (Example 2)

3. Julie is constructing a scale model of her room. The rectangular room is $10\frac{1}{4}$ inches by 8 inches. If 1 inch represents 2 feet of the actual room, what is the scale factor and the actual area of the room? (Examples 3 and 4)

4. Building on the Essential Question Explain how you could use a map to estimate the actual distance between Miami, Florida, and Atlanta, Georgia.

Rate Yourself!

How well do you understand scale drawings? Circle the image that applies.

☀️ Clear ☁️ Somewhat Clear ☁️ ☁️ Not So Clear

For more help, go online to access a Personal Tutor.



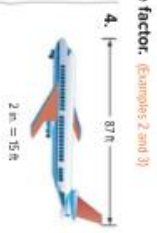
Independent Practice

20 Use Math Tools Find the actual distance between each pair of locations in South Carolina. Use a ruler to measure. (Example 9)



1 Columbia and Charleston _____

2 Hollywood and Sumter _____



5. A model of an apartment is shown where $\frac{1}{4}$ inch represents 3 feet in the actual apartment. Find the actual area of the master bedroom. (Example 4)





Extra Practice

29 Use Math Tools Find the actual distance between each pair of cities in New Mexico. Use a ruler to measure.



10. Carlsbad and Artesia 50 km

11. Hobbs and Eunice _____

$$\frac{1 \text{ cm}}{25 \text{ km}} = \frac{2 \text{ cm}}{A \text{ km}}$$

$$1 \times A = 25 \times 2$$

$$A = 50$$

12. Artesia and Eunice _____

13. Lovington and Carlsbad _____

14. Find the length of the model. Then find the scale factor. The length of an actual bird is shown at the right.



1 in = 0.5 in

Copy and Solve Show your work on a separate piece of paper.

15. A model of a tree is made using a scale of 1 inch = 25 feet. What is the height of the actual tree if the height of the model is $4\frac{3}{8}$ inches?

16. A map of Bakersfield has a scale of 1 inch = 5 miles. If the city is $5\frac{1}{2}$ inches across on the map, what is the actual distance across the city?

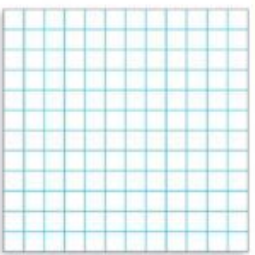
17. Tyson is creating a scale drawing of the area of his school. The rectangular drawing shows the length as 20 inches and the width as 19 inches. The drawing uses a scale of 1 inch = 3 feet. What is the actual area of the school in square feet?

6. Model with Mathematics Refer to the graphic novel frames below. The scale on the map shows that 1 centimeter is equal to 75 yards. If the red line represents the path they took, how far have Raul, Callyn, and Jamar traveled since they left the lake? Each square on the map is 1 centimeter long.



H.O.T. Problems Higher Order Thinking

7. Model with Mathematics On the grid paper, create a scale drawing of a room in your home. Include the scale that you used.



8. Reason Abstractly A statue of Thomas Jefferson was made using a scale of 3 feet = 1 foot. Write an expression to represent the height of the statue if Thomas Jefferson is x feet in height. Then find his actual height if the height of the statue is 19 feet.

9. Justify Conclusions Determine whether the following statement is always, sometimes, or never true. Justify your reasoning.
If the scale factor of a scale drawing is greater than one, the scale drawing is larger than the actual object.

Lesson 8-1 Circumference - A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1: <https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/area-circumference-circle/v/circles-radius-diameter-and-circumference>

Video 2: <https://www.youtube.com/watch?v=8M2N8Jqw9W4>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

Key Concept

Radius and Diameter

Words The diameter d of a circle is twice its radius r . The radius r of a circle is half of its diameter d .

Symbols $d = 2r$ $r = \frac{d}{2}$

Work Zone

STOP and Reflect
The diameter of a circle is 36 inches. Circle the radius.
72 in. 18 in.


a. _____
b. _____
c. _____
d. _____

614 Chapter 8 Measure Figures

Key Concept

Circumference

Words The circumference of a circle is equal to π times its diameter or π times twice its radius.


Model 

Symbols $C = \pi d$ or $C = 2\pi r$


Estimation
To estimate the circumference of a circle, you can use 3 for π since $\pi \approx 3$.

Examples

1. The diameter of a circle is 14 inches. Find the radius.

 $r = \frac{d}{2}$ Radius of circle
 $r = \frac{14}{2}$ Replace d with 14
 $r = 7$ Divide
The radius is 7 inches.

2. The radius of a circle is 8 feet. Find the diameter.

 $d = 2r$ Diameter of circle
 $d = 2 \cdot 8$ Replace r with 8.
 $d = 16$ Multiply
The diameter is 16 feet.

Got it? Do these problems to find out.

Find the radius or diameter of each circle with the given dimension.

a. $d = 23$ cm b. $r = 3$ in.
c. $d = 16$ yd d. $r = 5.2$

Example



3. Find the circumference of a circle with a radius of 21 inches.

Since 21 is a multiple of 7, use $\frac{22}{7}$ for π .

$C = 2\pi r$ Circumference of a circle
 $C \approx 2 \cdot \frac{22}{7} \cdot 21$ Replace π with $\frac{22}{7}$ and r with 21
 $C \approx 2 \cdot \frac{22}{\cancel{7}^1} \cdot \frac{21}{\cancel{7}^1}$ Divide by the GCF.
 $C \approx 132$ Simplify
The circumference of the circle is about 132 inches.

Got it? Do these problems to find out.

Find the circumference of each circle. Use $\frac{22}{7}$ for π .

a.  b. 

a. _____
b. _____
c. _____
d. _____

Lesson 1 Circumference 615

Independent Practice

Go online for Step-by-Step Solutions

Find the radius or diameter of each circle with the given dimensions.

Examples 1 and 2

1. $d = 5$ mm _____

2. $d = 24$ ft _____

3. $r = 17$ cm _____

Find the circumference of each circle. Use 3.14 or $\frac{22}{7}$ for π . Round to the nearest tenth if necessary. *Example 3*

4. 

5. 

6. 

7. The largest tree in the world by volume is in Sequoia National Park. The diameter at the base is 36 feet. If a person with outstretched arms can reach 6 feet, how many people would it take to reach around the base of the tree? *Example 4*

8. The Belknap shield volcano is located in the Cascade Range in Oregon. The volcano is circular and has a diameter of 5 miles. What is the circumference of this volcano. Round your answer to the nearest tenth? *Example 4*

Example

4. Big Ben is a famous clock tower in London, England. The diameter of the clock face is 23 feet. Find the circumference of the clock face. Round to the nearest tenth.

$$C = \pi d$$

Circumference of a circle

$$C \approx 3.14(23)$$

Replace π with 3.14 and d with 23

$$C \approx 72.2$$

Multiply

So, the distance around the clock is about 72.2 feet.

Get it? Do this problem to find out.

9. A circular fence is being placed to surround a tree. The diameter of the fence is 4 feet. How much fencing is used? Use 3.14 for π . Round to the nearest tenth if necessary.

Guided Practice

Find the radius or diameter of each circle with the given dimension.

Examples 1 and 2

1. $d = 3$ m _____

2. $r = 14$ ft _____

3. $d = 20$ in. _____

Find the circumference of each circle. Use 3.14 or $\frac{22}{7}$ for π . Round to the nearest tenth if necessary. *Examples 3 and 4*

4. 

5. 

6. **Building on the Essential Question** A circle has a circumference of about 16.3 meters and a diameter of about 5.2 meters. What is the relationship between the circumference and diameter of this circle?

Rate Yourself!

How confident are you about finding the circumference? Check the box that applies.

For more help, go online to access a Personal Tutor.



Name _____

My Homework _____

**Extra Practice**

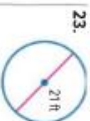
Find the radius or diameter of each circle with the given dimensions.

19. $d = 7$ in, 3.5 in

20. $d = 30$ m

21. $r = 36$ ft

$r = \frac{d}{2}$
 $r = \frac{7}{2}$ or 3.5

Find the circumference of each circle. Use 3.14 or $\frac{22}{7}$ for π .

25. a button with a radius of 21 millimeters

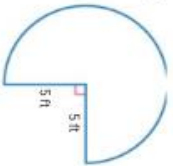
26. a dunk tank with a radius of 36 inches

Copy and Solve For Exercises 10–14, show your work on a separate piece of paper.Find the diameter given each circumference. Use 3.14 for π .

10. a satellite dish with a circumference of 9577 meters

11. a basketball hoop with a circumference of 56.52 inches

12. a nickel with a circumference of about 65.94 millimeters

Find the distance around each figure. Use 3.14 for π .**H.O.T. Problems** Higher Order Thinking15. **Justify Conclusions** Determine if the circumference of a circle with a radius of 4 feet will be greater or less than 24 feet. Explain.

16. **Model with Mathematics** Draw and label a circle that has a diameter more than 5 inches, but less than 10 inches. Estimate its circumference and then find its circumference using a calculator. Compare your results.

17. **Persevere with Problems** Analyze how the circumference of a circle would change if the diameter was doubled. Provide an example to support your explanation.

18. **Justify Conclusions** Determine whether the relationship between the circumference of a circle and its diameter is a direct variation. If so, identify the constant of proportionality. Justify your response.



Lesson 8-2 Area of Circles – A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1:

<https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/area-circumference-circle/v/area-of-a-circle>

Video 2: <https://www.youtube.com/watch?v=Jgh7E-Z5D3w>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

Key Concept

Find the Area of a Circle

Words
The area A of a circle equals the product of π and the square of its radius r .

Model


Symbols
 $A = \pi r^2$

Work Zone

STOP and Reflect

Cross out the formula that is not used for finding the area of a circle.

$A = \pi r^2$ $A = 3.14r^2$

$A = \frac{1}{2}\pi r^2$ $A = \frac{1}{2}\pi h$

Examples

1. Find the area of the circle. Use 3.14 for π .

Estimate $3 \times 2 \times 2 = 12$

$A = \pi r^2$ Area of a circle

$A \approx 3.14 \cdot 2^2$ Replace r with 2.

$A \approx 3.14 \cdot 4$ $2^2 = 2 \cdot 2$ or 4

$A \approx 12.56$ Multiply

Check for Reasonableness 12.56 = 12 ✓

The area of the circle is approximately 12.56 square inches.

2. Find the area of a circle with a radius of 14 centimeters. Use $\frac{22}{7}$ for π .

Estimate $3 \times 14 \times 14 = 588$

$A = \pi r^2$ Area of a circle

$A \approx \frac{22}{7} \cdot 14^2$ Replace π with $\frac{22}{7}$ and r with 14.

$A \approx \frac{22}{7} \cdot 196$ $14^2 = 14 \cdot 14$ or 196

$A \approx \frac{22}{7} \cdot 196$ Divide by the GCF, 7.

$A \approx 538$ Multiply

Check for Reasonableness 538 = 588 ✓

The area of the circle is approximately 538 square centimeters.

Get it? Do this problem to find out.

a. Find the area of a circle with a radius of 3.2 centimeters. Round to the nearest tenth.

Example

3. Find the area of the face of the Virginia quarter with a diameter of 24 millimeters. Use 3.14 for π . Round to the nearest tenth if necessary.

The radius is $\frac{1}{2}(24)$ or 12 millimeters.

$A = \pi r^2$ Area of a circle

$A \approx 3.14 \cdot 12^2$ Replace r with 12.

$A \approx 452.16$ Multiply

The area is approximately 452.2 square millimeters.

Get it? Do this problem to find out.

b. The bottom of a circular swimming pool with a diameter of 30 feet is painted blue. How many square feet are blue?

Area of Semicircles

A **semicircle** is half of a circle. The formula for the area of a semicircle is $A = \frac{1}{2}\pi r^2$.

Example

4. Find the area of the semicircle. Use 3.14 for π . Round to the nearest tenth.

$A = \frac{1}{2}\pi r^2$ Area of a semicircle

$A \approx \frac{1}{2}(3.14)8^2$ Replace r with 8.

$A \approx 0.5(3.14)(64)$ $8^2 = 8 \cdot 8$ or 64

$A \approx 100.5$ Simplify

The area of the semicircle is approximately 100.5 square inches.

Get it? Do this problem to find out.

c. Find the approximate area of a semicircle with a radius of 6 centimeters.

Calculating with π

When evaluating expressions involving π , using the π key on a calculator will result in a different representation.

Lesson 2 Area of Circles 625



Example

5. On a basketball court, there is a semicircle above the free-throw line that has a radius of 6 feet. Find the area of the semicircle. Use 3.14 for π . Round to the nearest tenth.

$$A = \frac{1}{2}\pi r^2$$

Area of a semicircle

$$A \approx 0.5(3.14)(6^2)$$

Replace π with 3.14 and r with 6.

$$A \approx 0.5(3.14)(36)$$

$$6^2 = 6 \cdot 6 \text{ or } 36$$

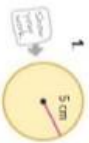
$$A \approx 56.5$$

Multiply

So, the area of the semicircle is approximately 56.5 square feet.

Guided Practice

Find the area of each circle. Round to the nearest tenth. Use 3.14 or $\frac{22}{7}$ for π . *(Example 1-3)*



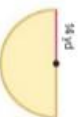
2.



3. diameter = 16 m

4. Rondell draws the semicircle shown at the right. What is the area of the semicircle?

Use 3.14 for π . *(Examples 4 and 5)*



5. **Building on the Essential Question** Name one way the circumference and area of a circle are the same and one way they are different.

Rate Yourself!

Are you ready to move on?
Shade the section that applies.

YES ? NO

For more help, go online to access a Personal Tutor.

Independent Practice

Find the area of each circle. Round to the nearest tenth. Use 3.14 or $\frac{22}{7}$ for π . *(Examples 1-3)*



2.



3.



4. diameter = 10.5 in.

5. radius = 6.3 mm

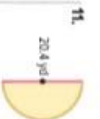
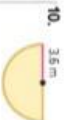
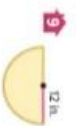
6. radius = $3\frac{1}{4}$ yd

7. Refer to the pets problem at the beginning of this lesson. Find the area, to the nearest tenth, of grass that Adrienne's dog may run in if the leash is 9 feet long. *(Example 3)*

8. A rotating sprinkler that sprays water at a radius of 11 feet is used to water a lawn. Find the area of the lawn that is watered. Use 3.14 for π .

Example 3

Find the area of each semicircle. Round to the nearest tenth. Use 3.14 for π . *(Example 4)*



12. The tunnel opening shown is a semicircle. Find the area, to the nearest tenth, of the opening of the tunnel enclosed by the semicircle. *(Example 5)*



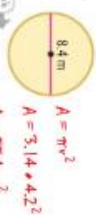


Name _____

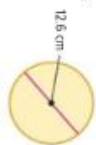
My Homework _____

**Extra Practice**Find the area of each circle. Round to the nearest tenth. Use 3.14 or $\frac{22}{7}$ for π .

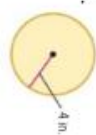
20.



21.



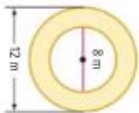
22.

**H.O.I. Problems** Higher Order Thinking

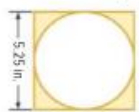
14. **Model with Mathematics** Write a real-world problem that involves finding the area of two circles. Then solve your problem.

15. **Reason Inductively** If the length of the radius of a circle is doubled, how does that affect the circumference and area? Explain.

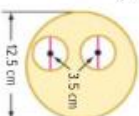
16. **Persevere with Problems** Find the area of the shaded region in each figure. Round to the nearest tenth.



17.



18.



19. **Persevere with Problems** Explain how you could find the area of the quarter circle shown at the right. Then write a formula that could be used to find the area of a quarter circle and use the formula to find the area to the nearest tenth.



23. diameter = 10.8 yd

24. radius = $3\frac{4}{5}$ ft

25. radius = 9.3 mm

26. Find the area of the Girl Scout patch shown if the diameter is 125 inches. Round to the nearest tenth.



Find the area of each semicircle. Round to the nearest tenth. Use 3.14 for π .

27.



28.



29.



30. A window that is in the shape of a semicircle has a diameter of 28 inches. Find the area of the window. Round to the nearest tenth.

31. **Justify Conclusions** Which has a greater area, a triangle with a base of 100 feet and a height of 100 feet or a circle with diameter of 100 feet? Justify your selection.

32. A radio station sends a signal in a circular area with an 80-mile radius. Find the approximate area in square kilometers that receives the signal. (*Hint:* 1 square mile \approx 2.6 square kilometers)

Lesson 9-1 Probability of Simple Events - A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1: <https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:basic-prob-prec/v/simple-probability>

Video 2: <https://www.youtube.com/watch?v=M5jpM4AgBnU>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

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STOP and Reflect
In the space below, describe an example of a simple event that is certain to occur.

Key Concept
Probability
Words The probability of an event is a ratio that compares the number of favorable outcomes to the number of possible outcomes.
Symbols $P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$

The probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Greater numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
Probability can be written as a fraction, decimal, or percent.

Outcomes occur at **random** if each outcome is equally likely to occur.

Example
There are six equally likely outcomes if a number cube with sides labeled 1 through 6 is rolled.
1. Find $P(6)$ or the probability of rolling a 6.
There is only one 6 on the number cube.
 $P(6) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}} = \frac{1}{6}$
The probability of rolling a 6 is $\frac{1}{6}$ or about 17%, or about 0.17.

Got it? Do this problem to find out.
a. A coin is tossed. Find the probability of the coin landing on heads. Write your answer as a fraction, percent, and decimal.

Example
2. Find the probability of rolling a 2, 3, or 4 on the number cube.
The word "or" indicates that the number of favorable outcomes needs to include the numbers 2, 3, and 4.
 $P(2, 3, \text{ or } 4) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}} = \frac{3}{6}$ or $\frac{1}{2}$ Simplify
The probability of rolling a 2, 3, or 4 is $\frac{1}{2}$, 50%, or 0.5.

Got it? Do these problems to find out.
The spinner at the right is spun once. Find the probability of each event. Write each answer as a fraction, percent, and decimal.
b. $P(F)$ c. $P(D \text{ or } G)$ d. $P(\text{vowel})$

Find Probability of the Complement
Complementary events are two events in which either one or the other must happen, but they cannot happen at the same time. For example, a coin can either land on heads or not land on heads. The sum of the probability of an event and its complement is 1 or 100%.

Example
3. Find the probability of not rolling a 6 in Example 1.
The probability of not rolling a 6 and the probability of rolling a 6 are complementary. So, the sum of the probabilities is 1.
 $P(6) + P(\text{not } 6) = 1$ $P(6)$ and $P(\text{not } 6)$ are complements.
 $\frac{1}{6} + P(\text{not } 6) = 1$ Replace $P(6)$ with $\frac{1}{6}$.
 $\frac{1}{6} + P(\text{not } 6) = 1$ **THINK** $\frac{1}{6}$ plus what number equals 1?
 $\frac{1}{6} + \frac{5}{6} = 1$
The probability of not rolling a 6 is $\frac{5}{6}$ or about 83%, or 0.83.

Got it? Do this problem to find out.
e. A bag contains 5 blue, 8 red, and 7 green marbles. A marble is selected at random. Find the probability the marble is not red.

Complement
In everyday language, complement means the quantity required to make something complete. This is similar to the math meaning.

a. _____
b. _____
c. _____
d. _____
e. _____



Example



4. Mr. Harada surveyed his class and discovered that 30% of his students have blue eyes. Identify the complement of this event. Then find its probability.

The complement of having blue eyes is not having blue eyes. The sum of the probabilities is 100%.

$$P(\text{blue eyes}) + P(\text{not blue eyes}) = 100\%$$

$$30\% + P(\text{not blue eyes}) = 100\%$$

$$30\% + 70\% = 100\%$$

So, the probability that a student does not have blue eyes is 70%, 0.7, or $\frac{7}{10}$.

P(blue eyes) and P(not blue eyes) are complements.

Replace P(blue eyes) with 30%.

THINK 30% plus what number equals 100%?

Guided Practice



A letter tile is chosen randomly. Find the probability of each event. Write each answer as a fraction, percent, and decimal. (Examples 1–3)



1. P(D) _____

2. P(S, V, or L) _____

3. P(not D) _____

4. The probability of choosing a “Go Back 1 Space” card in a board game is 25%. Describe the complement of this event and find its probability. (Example 4)

5. **Building on the Essential Question** Explain the relationship between the probability of an event and its complement. Give an example.

Rate Yourself!

How confident are you about finding the probability of simple events? Shade the ring on the target.

FOCUS Time to update your Foldable!

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Tutor



Independent Practice

The spinner shown is spun once. Find the probability of each event. Write each answer as a fraction, percent, and decimal. (Examples 1–3)



1. P(blue)

2. P(red or yellow)

3. P(not brown)

4. P(not green)

5. Refer to the table on air travel at selected airports. Suppose a flight that arrived at El Centro is selected at random. What is the probability that the flight did not arrive on time? Write the answer as a fraction, decimal, and percent. Explain your reasoning. (Example 4)

Air Travel	Arrivals (Percent on-time)
El Centro (CA)	80
Baltimore (MD)	82

6. **Model with Mathematics** Refer to the graphic novel frame below. Jamar and Theresa decide to create a music mix and include an equal number of songs from each genre. What is the probability that any given song would be from the hip-hop genre?

Other surveys it cites like ours say there are five kinds of music that the kids like—country, classical, hip-hop, oldies, and alternative.

We want to make sure there are all five types on this mix CD for the school dance.

We gave surveys to 100 teens.

One jelly bean is picked, without looking, from the dish. Write a sentence that explains how likely it is for each event to happen.

7. black

8. purple, red, or yellow



H.O.T. Problems Higher Order Thinking

9. Ⓢ Persevere with Problems The probability of landing in a certain section on a spinner can be found by considering the size of the angle formed by that section. On spinner shown, the angle formed by the yellow section is one-fourth of the angle formed by the entire circle. So, $P(\text{yellow}) = \frac{1}{4}$, 0.25, or 25%.



a. Determine $P(\text{green})$ and $P(\text{orange})$ for the spinner. Write the probabilities as fractions, decimals, and percents.

b. Determine $P(\text{not yellow})$.

10. Ⓢ Persevere with Problems A bag contains 6 red, 4 blue, and 8 green marbles. How many marbles of each color should be added so that the total number of marbles is 27, but the probability of randomly selecting one marble of each color remains unchanged?

11. Ⓢ Which One Doesn't Belong? Circle the pair of probabilities that does not belong with the other three. Explain your reasoning.

$0.625, \frac{3}{8}$

$0.38, 62\%$

$\frac{7}{8}, 0.125$

$70\%, \frac{1}{2}$



Name _____ My Homework _____



Extra Practice

Ten cards numbered 1 through 10 are mixed together and then one card is drawn. Find the probability of each event. Write each answer as a fraction, percent, and decimal.

12. $P(8)$

$\frac{1}{10}, 10\%, \text{ or } 0.1$

Only 1 card has an 8. So, $P(8)$ is $\frac{1}{10}, 10\%, \text{ or } 0.1$.

13. $P(7 \text{ or } 9)$

$\frac{1}{5}, 20\%, \text{ or } 0.2$

There is 1 card with a 7 and 1 card with a 9. So, $P(7 \text{ or } 9)$ is $\frac{2}{10}$, or 20% , or 0.2 .

14. $P(\text{less than } 5)$

15. $P(\text{greater than } 3)$

16. $P(\text{odd})$

17. $P(\text{even})$

18. $P(\text{not a multiple of } 4)$

19. $P(\text{not } 5, 6, 7, \text{ or } 8)$

20. $P(\text{divisible by } 3)$

21. Of the students at Grant Middle School, 63% are girls. The school newspaper is randomly selecting a student to be interviewed. Describe the complement of selecting a girl and find the probability of the complement. Write the answer as a fraction, decimal, and percent.

22. The table shows the number of dogs and cats at a groomer. If a pet is selected at random to be groomed, find the probability that Patches the cat will be selected. Then find the probability that a cat will be selected.

Pets at the Groomer	
Cats	Dogs
12	16



23. Ⓢ Persevere with Problems For a certain game, the probability of choosing a card with the number 13 is $\frac{8}{1000}$. Find the probability of not choosing a card with the number 13. Then describe the likelihood of the event occurring.

9-5 Fundamental Counting Principle - A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1: <https://www.khanacademy.org/math/probability/probability-geometry/counting-permutations/v/counting-pot-and-flower-scenarios>

Video 2: <https://www.youtube.com/watch?v=fhfwQQWjZTI>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

Key Concept

Fundamental Counting Principle

If event M has m possible outcomes and event N has n possible outcomes, then event M followed by event N has $m \times n$ possible outcomes.

You can use multiplication instead of making a tree diagram to find the number of possible outcomes in a sample space. This is called the **Fundamental Counting Principle**.

Example

1. Find the total number of outcomes when a coin is tossed and a number cube is rolled.

A coin has 2 possible outcomes. A number cube has 6 possible outcomes. Multiply the possible outcomes of each event.

coin number cube total
 ↓ ↓ ↓
 2 • 6 = 12

There are 12 different outcomes.

Check Draw a tree diagram to show the sample space.

Coin

Coin	Number Cube	Sample Space
heads	1	heads, 1
heads	2	heads, 2
heads	3	heads, 3
heads	4	heads, 4
heads	5	heads, 5
heads	6	heads, 6
tails	1	tails, 1
tails	2	tails, 2
tails	3	tails, 3
tails	4	tails, 4
tails	5	tails, 5
tails	6	tails, 6

The tree diagram also shows that there are 12 outcomes. ✓

Got it? Do this problem to find out.

a. Find the total number of outcomes when choosing from bike helmets that come in three colors and two styles.

Find Probability

You can use the Fundamental Counting Principle to help find the probability of events.

Examples

2. Find the total number of outcomes from rolling a number cube with sides labeled 1–6 and choosing a letter from the word **NUMBERS**. Then find the probability of rolling a 6 and choosing an M.

Number cube letters total
 ↓ ↓ ↓
 6 • 7 = 42

There are 42 different outcomes.

There is only one favorable outcome. So, the probability of rolling a 6 and choosing an M is $\frac{1}{42}$ or about 2%.

3. Find the number of different jeans available at The Jeans Shop. Then find the probability of randomly selecting a size 32 X 34 slim fit. Is it likely or unlikely that the jeans would be chosen?

The Jeans Shop		
Waist Size	Length (in.)	Style
30	30	slim fit
32	32	bootcut
34	34	loose fit
36	36	
38	38	

size length style total
 ↓ ↓ ↓ ↓
 5 • 3 • 3 = 45

There are 45 different types of jeans to choose. Out of the 45 possible outcomes, only one is favorable. So, the probability of randomly selecting a 32 X 34 slim fit is $\frac{1}{45}$ or about 2%. It is very unlikely that the size would be chosen at random.

Got it? Do this problem to find out.

b. Two number cubes are rolled. What is the probability that the sum of the numbers on the cubes is 7? How likely is it that the sum would be 12?

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Statistics and Probability

Jeans Size

In men's jeans, the size is labeled waist x length. So a 32 x 34 is a 32-inch waist with a 34-inch length.

Lesson 5 Fundamental Counting Principle 759

759



Example

4. A box of toy cars contains blue, orange, yellow, red, and black cars. A separate box contains a male and a female action figure. What is the probability of randomly choosing an orange car and a female action figure? Is it likely or unlikely that this combination is chosen?

First, find the number of possible outcomes.

There are 5 choices for the car and 2 choices for the action figure.

$$5 \cdot 2 = 10 \quad \text{Fundamental Counting Principle}$$

There are 10 possible outcomes. There is one way to choose an orange car and a female action figure. It is very unlikely that this combination is chosen at random.

$$P(\text{orange car, female action figure}) = \frac{1}{10} \text{ or } 10\%$$

Guided Practice

- Use the Fundamental Counting Principle to find the number of outcomes from tossing a quarter, a dime, and a nickel. (Example 1)
- How many outcomes are possible when rolling a number cube and picking a cube from 4 different colored cubes? (Example 1)
- Find the number of different outfits that can be made from 3 sweaters, 4 blouses, and 6 skirts. Then find the probability of randomly selecting a particular sweater-blouse-skirt outfit. Is the probability of this event likely or unlikely? (Examples 2–4)

- Building on the Essential Question** Compare and contrast tree diagrams and the Fundamental Counting Principle.

Rate Yourself!

How confident are you about using the Fundamental Counting Principle? Strike five rings on the target.

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Tutor

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Independent Practice

Use the Fundamental Counting Principle to find the total number of outcomes for each situation. (Example 1)

- choosing a bagel with one type of cream cheese from the list shown in the table

Bagels	Cream Cheese
Plain	Plain
Blueberry	Chive
Cinnamon	Sun-dried tomato
raisin	
Galic	

- choosing a sandwich and a side from the list shown in the table

Sandwiches	Sides
Ham	Pasta Salad
Turkey	Fruit Cup
Roast Beef	Potato Chips
Tuna Salad	Side Salad
Vegetarian	

- picking a month of the year and a day of the week
- choosing from a comedy, horror, or action movie each shown in four different theaters

- Find the number of possible routes from Eastland to Johnston that pass through Harping. Then find the probability that State and Fairview will be used if a route is selected at random. State the probability as a fraction and percent. (Examples 2–3)



- Find the number of possible choices for a 2-digit number that is greater than 19. Then find the number of possible choices for a 4-digit Personal Identification Number (PIN) if the digits cannot be repeated. (Example 1)
- An electronics company makes educational apps for 5 subjects, including math. The app has 10 versions, with a different avatar in each version. One version has an avatar that looks similar to a lion. The company is randomly giving free apps to its customers. Find the probability of randomly receiving a math app with a lion avatar. How likely is the probability of receiving this app at random? (Examples 2–4)

8. A sandwich shop offers 4 different meats and 2 different cheeses. Suppose the sandwich shop offers 24 different meat-cheese sandwiches. How many different breads does the sandwich shop use?

9. **25 Justify Conclusions** A store offers 32 different T-shirt designs and 11 choices of color. Is the store's advertisement true? Explain.



H.O.T. Problems Higher Order Thinking

10. **25 Persevere with Problems** Determine the number of possible outcomes when tossing one coin, two coins, and three coins. Then determine the number of possible outcomes for tossing n coins. Describe the strategy you used.

11. **23 Which One Doesn't Belong?** Identify the choices for events M and N that do not result in the same number of outcomes as the other two. Explain your reasoning.

9 Awards, 8 Accents

10 groups, 8 activities

12. **25 Justify Conclusions** Marcus has a choice of a white, gray, or black shirt to wear with a choice of tan, black, brown, or denim pants. Without calculating the number of possible outcomes, how many more outfits can he make if he buys a green shirt? Explain your reasoning to a classmate.

13. **23 Persevere with Problems** Write an algebraic expression to find the number of outcomes if a number cube is rolled x times.



Name _____ My Homework _____



Extra Practice

Use the Fundamental Counting Principle to find the total number of outcomes for each situation.

14. rolling a number cube and spinning a spinner with eight equal sections **48**

$6 \times 8 = 48$



16. selecting one sweatshirt from a choice of five sweatshirts and one pair of pants from a choice of four pairs of pants

17. selecting one entrée from a choice of nine entrées and one dessert from a choice of three desserts

18. rolling a number cube and tossing two coins

19. choosing tea in regular, raspberry, lemon, or peach; sweetened or unsweetened; and in a glass or bottle

20. A cafeteria offers oranges, apples, or bananas as its fruit option. It offers peas, green beans, or carrots as the vegetable option. Find the number of fruit and vegetable options. If the fruit and the vegetable are chosen at random, what is the probability of getting an orange and carrots? Is it likely or unlikely that a customer would get an orange and carrots?

21. **23 Justify Conclusions** The table shows cell phone options offered by a wireless phone company. If a phone with one payment plan and one accessory is given away at random, predict the probability that it will be Brand B and have a headset. Explain your reasoning.

Phone Brands	Payment Plans	Accessories
Brand A	Individual	Leather case
Brand B	Family	Car mount
Brand C	Business	Headset
	Government	Travel charger

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9-6 Permutations - A Two Day Activity

Instructions for all math lessons can be found at the beginning of the math section.

Video 1: <https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinations/v/introduction-to-combinations>

Video 2: <https://www.youtube.com/watch?v=z07R6tYIEE>

Video 2 references some of the examples within the lesson below. Watch the video and work through the examples.

Work Zone

Find a Permutation

A **permutation** is an arrangement, or listing, of objects in which order is important.

Making
Studying
Homework

Swimming
Homework
Making

You can use the Fundamental Counting Principle to find the number of permutations.

Examples

- Julia is scheduling her first three classes. Her choices are math, science, and language arts. Use the Fundamental Counting Principle to find the number of different ways Julia can schedule her first three classes.

There are 3 choices for the first class.

There are 2 choices that remain for the second class.

There is 1 choice that remains for the third class.

$$3 \cdot 2 \cdot 1 = 6$$

← the number of permutations of 3 classes

There are 6 possible arrangements, or permutations, of the 3 classes.
- An ice cream shop has 31 flavors. Carlos wants to buy a three-scoop cone with three different flavors. How many cones could he buy if the order of the flavors is important?

There are 31 choices for the first scoop, 30 choices for the second scoop, and 29 choices for the third scoop.

Use the Fundamental Counting Principle.

$$31 \cdot 30 \cdot 29 = 26,970$$

Carlos could buy 26,970 different cones.

Got it? Do these problems to find out.

- In how many ways can the starting six players of a volleyball team stand in a row for a picture?
- In a race with 7 runners, in how many ways can the runners end up in first, second, and third place?

Statistics and Probability

The symbol $P(31, 3)$ represents the number of permutations of 31 things taken 3 at a time.

$$P(31, 3) = 31 \cdot 30 \cdot 29$$

Start with 31

Use these factors

Example

- Find $P(8, 3)$.

$P(8, 3) = 8 \cdot 7 \cdot 6$ or 336

8 things taken 3 at a time

Got it? Do these problems to find out.

- $P(12, 2)$
- $P(4, 4)$
- $P(10, 5)$

Statistics and Probability

Find Probability

Permutations can be used when finding probabilities of real-world situations.

Examples

- Ashley's MP3 player has a setting that allows the songs to play in a random order. She has a playlist that contains 10 songs. What is the probability that the MP3 player will randomly play the first three songs in order?

First find the permutation of ten things taken three at a time or $P(10, 3)$.

10 songs

Choose 3

10 choices for the 1st song
9 choices for the 2nd song
8 choices for the 3rd song

$$P(10, 3) = 10 \cdot 9 \cdot 8 = 720$$

So, there are 720 different ways to play the first 3 songs. Since you want the first three songs in order, there is only 1 out of the 720 ways to do this. So, the probability that the first 3 songs will play in order is $\frac{1}{720}$.

Statistics and Probability

Notation

$P(10, 3)$ indicates a permutation while the notation $P(10, 3)$ indicates the first three songs in order indicated probability.

A. _____

B. _____

C. _____


D. _____

E. _____

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Independent Practice

Go online for Step-by-Step Solutions 

-  In the Battle of the Bands contest, in how many ways can the four participating bands perform? *(Examples 1 and 2)*
2. A garage door code has 5 digits. If no digit is repeated, how many codes are possible?

- Find each value. Use a calculator if needed. *(Example 3)*
3. $P(7, 4)$ _____ 4. $P(12, 5)$ _____
5. $P(8, 8)$ _____

6. You have five seasons of your favorite TV show on DVD. If you randomly select two of them from a shelf, what is the probability that you will select season one first and season two second? *(Examples 4 and 5)*

7.  **Model with Mathematics** The graphic novel frame below explains how the survey has students rank their favorite kinds of music. In how many ways can the survey be answered?



Swimmers	
Octavia	Eden
Nashala	Paquita
Calista	Samantha
Yumli	Lorena

5. A swimming event features 8 swimmers. If each swimmer has an equally likely chance of finishing in the top two, what is the probability that Yumli will be in first place and Paquita in second place?
- First find the permutation of 8 things taken two at a time or $P(8, 2)$.
- $$P(8, 2) = 8 \cdot 7$$
- $$= 56$$

There are 56 possible arrangements, or permutations, of the two places. Since there is only one way of having Yumli come in first and Paquita second, the probability of this event is $\frac{1}{56}$.

Got it? Do this problem to find out.

1. Two different letters are randomly selected from the letters in the word *math*. What is the probability that the first letter selected is *m* and the second letter is *h*?

Reasonable Answers
A possible probability of $\frac{1}{24}$ indicates that it is very unlikely that Yumli will finish first and Paquita will finish second.

Guided Practice

1. In how many ways can a president, vice president, and secretary be randomly selected from a class of 25 students? *(Examples 1 and 2)*
2. Find the value of $P(5, 3)$. *(Example 3)*

3. Adrienne, Julian, and two of their friends will sit in a row at a baseball game. If each friend is equally likely to sit in any seat, what is the probability that Adrienne will sit in the first seat and Julian will sit in the second seat? *(Examples 4 and 5)*

4.  **Building on the Essential Question** HOW can you find the number of permutations of a set of objects?

Rate Yourself!

I understand how to find permutations.

 Great! You're ready to move on!

I still have questions about finding permutations.

 No Problem! Go online to access a Personal Tutor.





Extra Practice

8. A certain number of friends are waiting in line to board a new roller coaster. They can board the ride in 5,040 different ways. How many friends are in line?
9. The Coughlin family discovered they can stand in a row for their family portrait in 720 different ways. How many members are in the Coughlin family?

10. Howland Middle School assigns a four-digit identification number to each student. The number is made from the digits 1, 2, 3, and 4, and no digit is repeated. If assigned randomly, what is the probability that an ID number will end with a 3?

H.O.T. Problems Higher Order Thinking

11. **Model with Mathematics** Describe a real-world situation that has 6 permutations.
12. **Persevere with Problems** There are 1,320 ways for three students to win first, second, and third place during a debate match. How many students are there on the debate team? Explain your reasoning.

13. **Persevere with Problems** A combination is an arrangement where order is not important. You can find the number of combinations of items by dividing the number of permutations by the number of ways the smaller set can be arranged. The combination at the right shows the number of combinations if you choose 2 flavors of ice cream out of 5 flavors. Use this method to find each value.



Remember! $6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 720$

14. How many permutations are possible of the letters in the word FRIEND? **720**
15. How many different 3-digit numbers can be formed using the digits 9, 3, 4, 7, and 6? Assume no number can be used more than once.

Find each value. Use a calculator if needed.

16. $P(9, 2)$ _____

17. $P(5, 5)$ _____

18. $P(7, 7)$ _____

19. The members of the Evergreen Junior High Quiz Bowl team are listed in the table. If a captain and an assistant captain are chosen at random, what is the probability that Walter is selected as captain and Mi-Ling as co-captain?

Evergreen Junior High Quiz Bowl Team	
Jamil	Luanda
Savannah	Mi-Ling
Tucker	Booker
Ferdinand	Nisa
Walter	Meghan

20. Alex, Aiden, Dexter, and Dion are playing a video game. If they each have an equally likely chance of getting the highest score, what is the probability that Dion will get the highest score and Alex the second highest?


21. A child has wooden blocks with the letters shown. Find the probability that the child randomly arranges the letters in the order TIGER.



Lesson 7-4 Scale Drawings Check Your Answers

Guided Practice		10. 50km
1. 60km	3. 12 cm; 1/300	11. 30 km
2. 16 $\frac{2}{5}$ in	4. 11 $\frac{3}{5}$ in; 1/90	12. 130 km
3. 1/24; 328ft ²	5. 108ft ²	13. 102.5 km
4. Sample answer: Use the scale given on the map to estimate the actual distance.	6. 1275 yds	14. 11 $\frac{3}{4}$ in; 2/1
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	7. Answers vary.	15. 109 $\frac{3}{8}$ ft
1. 102.6 mi	8. 3x; about 6 $\frac{1}{3}$ ft or 6 ft 4 in	16. 26 min
2. 81 mi	9. Always; Sample answer: A scale factor of 3/1 means that 3 units of the drawing is equal to 1 unit of the object, so the scale drawing or model will be larger than the actual object.	17. 3,420 ft ²

Lesson 8-1 Circumference Check Your Answers

Guided Practice	6. $22/7 \times 7 = 22$ mi	19. Homework Help Example
1. 1.5 m	7. 19 people	20. 15 m
2. 28 ft	8. 15.7 m	21. 72 ft
3. 10 in.	9. a) 30 mm b) 314 mm c) 31.4159 mm d) Sample answer: The more decimal places of the estimate of π , the more precise the circumference.	22. $3.14 \times 2(5) = 31.4$ in.
4. $3.14 \times 15 = 47.1$ m	10. 305 m	23. $22/7 \times 21 = 66$ ft
5. $2 \frac{2}{7} \times 14 = 44$ yd	11. 18 in.	24. $22/7 \times 14/15 = 2 \frac{14}{15}$ in.
6. Sample answer: The circumference is about three times the measure of the diameter.	12. 21 mm	25. $22/7 \times 42 = 132$ mm
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	13. 257 cm	26. $3.14 \times 72 = 226.08$ in.
1. 2.5 mm	14. 33.55 ft	27. 377 cm
2. 12 ft	15. Greater than; Sample answer: Since the radius is 4 feet, the diameter is 8 feet. Since π is a little more than 3, the circumference will be a little more than 3 times 8, or 24 feet.	28. about 94.2 yd
3. 34 cm	16. Estimated circumference: 21 in.: 22.0. The estimate is close to the value found on the calculator. 	29. Each is π , or about 3.14 units longer than the previous circle.
4. $3.14 \times 8 = 25.1$ ft	17. The circumference would double. For example, with a diameter of 4 feet, the circumference is about 12.6 feet. With a diameter of 8, the circumference is about 25.1 feet.	
5. $3.14 \times 13 = 40.8$ cm	18. Yes; Sample answer: The formula for the circumference C of a circle related to its diameter d is $C = \pi d$. The two variables C and d have a constant ratio, π . The constant of proportionality is π .	

Lesson 8-2 Area of Circles Check Your Answers

Guided Practice	7. 254.3 ft ²	20. $3.14 \times 4.2 \times 4.2 = 55.4 \text{ m}^2$
1. $3.14 \times 5 \times 5 = 78.5 \text{ cm}^2$	8. 379.94 ft ²	21. $3.14 \times 6.3 \times 6.3 = 124.6 \text{ cm}^2$
2. $22/7 \times 7 \times 7 = 154 \text{ in}^2$	9. 226.1 in ²	22. $3.14 \times 4 \times 4 = 50.2 \text{ in}^2$
3. $3.14 \times 8 \times 8 = 201.0 \text{ m}^2$	10. 20.3 m ²	23. $3.14 \times 5.4 \times 5.4 = 91.6 \text{ yd}^2$
4. 307.72 yd ²	11. 163.3 yd ²	24. $3.14 \times 3.8 \times 3.8 = 45.3 \text{ ft}^2$
5. Sample answer: They are the same in that they are both measurements of a circle. They are different in that circumference is measured in linear units while area is measured in square units.	12. 207.6 ft ²	25. $3.14 \times 9.3 \times 9.3 = 271.6 \text{ mm}^2$
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	13. The large pizza; the medium pizza's area is 78.5 in ² and costs \$0.102 per square inch. The large pizza's area is 153.86 in ² and costs \$0.097 per square inch.	26. 1.2 in ²
1. $3.14 \times 6 \times 6 = 113.0 \text{ cm}^2$	14. Sample answer: The interior of a circular dirt bike track has a 25-foot radius. There is a 40-foot radius from the center of the interior to the outer edge of the track. What is the area of the track? 3,061.5 ft ² .	27. 144.7 ft ²
2. $22/7 \times 28 \times 28 = 2,464 \text{ in}^2$	15. When the radius of a circle is doubled, the circumference doubles and the area is 4 times as large. In the formula for area of a circle, the radius is squared, so when the radius of a circle is doubled, the area is 2 ² or 4 times as large.	28. 26.4 mm ²
3. $3.14 \times 5.5 \times 5.5 = 95.0 \text{ ft}^2$	16. 62.8 m ²	29. 64.3 in ²
4. $3.14 \times 5.25 \times 5.25 = 86.5 \text{ in}^2$	17. 5.9 in ²	30. 307.7 in ²
5. $3.14 \times 6.3 \times 6.3 = 124.6 \text{ mm}^2$	18. 103.4 cm ²	31. Circle; $\frac{1}{2} \times 100 \times 100 < 3 \times 50 \times 50$
6. $3.14 \times 3.25 \times 3.25 = 33.2 \text{ yd}^2$	19. Sample answer: To find the area of the quarter circle, multiply the area of the entire circle by $\frac{1}{4}$; $A = (\pi)r^2$; 19.6 in ²	32. 52, 249.6 km ²

Lesson 9-1 Probability of Simple Events Check Your Answers

Guided Practice	4. $\frac{5}{8}$, 37.5%, or 0.375	14. $\frac{2}{5}$, 40%, 0.4
1. $\frac{1}{9}$, about 11% or about 0.11	5. $\frac{1}{5}$, 0.2, or 20%; Sample answer: Since 80% arrive on time, that means that 20% do not arrive on time.	15. $\frac{7}{10}$, 70%, 0.7
2. $\frac{1}{3}$, about 33% or about 0.33	6. $\frac{1}{5}$	16. $\frac{1}{2}$, 50%, 0.5
3. $\frac{8}{9}$, about 89% or about 0.89	7. Picking a black jelly bean is impossible since the probability of picking a black jelly bean is 0%.	17. $\frac{1}{2}$, 50%, 0.5
4. The complement of selecting a "Go Back 1 Space" card is selecting any card other than that card. Its probability is $\frac{3}{4}$, 0.75, or 75%.	8. This is very likely to happen since the probability of picking purple, red, or yellow jelly bean is 90%, $\frac{9}{10}$, or 0.9.	18. $\frac{4}{5}$, 80%, 0.8
5. Sample answer: The probability of an event occurring or its complement occurring is certain to happen. If there is a 30% chance of rain, then the complement is a 70% chance of no rain.	9. a. $\frac{1}{8}$, 0.125, 12.5%; $\frac{1}{2}$, 0.5, 50% b. $\frac{3}{4}$, 0.75, 75%	19. $\frac{3}{5}$, 60%, 0.6
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	10. Sample answer: There are 18 marbles in the bag. Nine marbles should be added. To do so without changing the probability, add 3 red, 2 blue, and 4 green marbles.	20. $\frac{3}{10}$, 30%, 0.3
1. $\frac{1}{4}$, 25%, or 0.25	11. 70%, $\frac{1}{3}$; Sample answer: 70% and $\frac{1}{3}$ are probabilities that are not complementary because $0.7 + 0.33333\dots$ does NOT = 1. The other sets are complementary.	21. The complement of selecting a girl is selecting a boy. The probability of the complement is $\frac{37}{100}$, 0.37, or 37%.
2. $\frac{3}{8}$, 37.5%, or 0.375	12. $\frac{1}{10}$, 10%, 0.1; Only 1 card has an 8, so P(8) is $\frac{1}{10}$, 10%, or 0.1.	22. $\frac{1}{28}$, about 0.04, or about 4%; $\frac{3}{7}$, about 43%, or about 0.43
3. $\frac{1}{1}$, 100%, or 1	13. $\frac{1}{5}$, 20%, 0.2; There is 1 card with a 7 and 1 with a 9, so P(7 or 9) is $\frac{1}{5}$, 20%, or 0.2.	23. $\frac{124}{125}$, 99.2%, or .992; it is very likely that card 13 will NOT be chosen.

Lesson 9-5 Fundamental Counting Principle Check Your Answers

Guided Practice	5. 6 possible routes; $\frac{1}{6}$ or about 17%	15. 8
1. 8	6. 80; 5,040	16. 20
2. 24	7. $\frac{1}{90}$; very unlikely	17. 27
3. 72; $\frac{1}{72}$ or about 1.4%; unlikely	8. 3 different breads	18. 24
4. Sample answer: Tree diagrams show specific outcomes. The Fundamental Counting Principle is a faster way to obtain the number of outcomes.	9. No; the number of selections is 32×11 or 352, which is less than 365.	19. 16
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	10. 2; 4; 8; Sample answer: I used a pattern to determine the number of outcomes for n coins. One coin: 2^1 outcomes, two coins: 2×2 or 2^2 outcomes, three coins: $2 \times 2 \times 2$ or 2^3 , n coins: 2^n outcomes.	20. 9 options; $\frac{1}{9}$ or about 11.1%; unlikely
1. 12	11. 10 groups, 8 activities have 80 outcomes; the other two have 72 outcomes.	21. $\frac{4}{48}$ or $\frac{1}{12}$; Sample answer: There are $3 \times 4 \times 4$ or 48 different possible outcomes of a phone plan. There are $1 \times 4 \times 1$ or 4 different possible outcomes of a phone plan that includes Brand B and a headset.
2. 20	12. 4 more outfits; Sample answer: He will have four different pairs of pants that he can wear with the green shirt.	
3. 84	13. 6^x	
4. 12	14. 48	

Lesson 9-6 Permutations Check Your Answers

Guided Practice	4. 95,040	13. a) 15 b) 120 c) 10 d) 28
1. 13,800	5. 40,320	14. Homework Help Example
2. 60	6. 1/20	15. 60
3. 1/12	7. 120 ways	16. 72
4. Sample answer: The Fundamental Counting Principle can be used to find the number of permutations of a set of objects.	8. 6	17. 120
Independent Practice H.O.T. (Higher Order Thinking) Extra Practice	9. 6	18. 5,040
1. 24	10. 1/4	19. 1/90
2. 30,240	11. Sample answer: The number of ways you can order 3 books on a shelf is $3+1+2$ or 6.	20. 1/12
3. 840	12. 12students: Since $12 \times 11 \times 10 = 1,320$, there must be 12 students on the debate team.	21. 1/120