

Lesson Plan Template

Grade: 9		Subject: Algebra 1-Percentages	
Materials: Skeleton Notes, Maze Activity sheet		Technology Needed: Projector, Calculators	
Instructional Strategies: <ul style="list-style-type: none"> <input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list) 		Guided Practices and Concrete Application: <ul style="list-style-type: none"> <input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain: Students can work on the activity independently of with a partner.	
Standard(s) 6.RP.3 Use tables of equivalent ratios, tape diagrams, double number line diagrams, and equations to reason about ratios and rates in real world and mathematical problems. c. Find a percent of a quantity as a rate per 100. Solve problems involving finding the whole, given a part and the percent. 7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. 7.RP.3 Use proportional relationships to solve multi-step ratio and percent problems.		Differentiation Below Proficiency: Students who struggle with percent computations will receive help and guidance from teacher and/or peers. Above Proficiency: Students who excel with percent computations will be expected to complete most, if not all, of the activity. These students will also have the opportunity to help peers who are below or approaching proficiency. When aiding peers, students are not to just give the answer, but guide peers on the right track. Approaching/Emerging Proficiency: Students approaching/emerging proficiency will work on the activity and can ask questions when confusion arises. Modalities/Learning Preferences: Students will be allowed to work with a partner of their choosing or work independently.	
Objective(s) Students will, at the end of the 9 th grade Algebra 1 class period, be able to apply and manipulate the percent equation to calculate the percent of a number and solve real world problems involving percentages. Bloom's Taxonomy Cognitive Level: Apply, Analyze			
Classroom Management- (grouping(s), movement/transitions, etc.) Students must complete the final example in the notes, show they arrived at the correct answer with work shown, then they will receive the activity sheet. Students are then free to partner up and work together. All students will remain in the classroom during worktime.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students will know the classroom routine of entering the classroom and finding their assigned seats, as well as taking out notes. Phones are to be put away during notes and work time. Students will be expected to take notes and stay focused on the activity until the end of class or completion of the activity. All work is to be shown on worksheet and exit ticket. Bell dismisses the class, no congregating at the door before the bell rings.	
Minutes	Procedures		
25	Set-up/Prep: Create skeleton notes, 26 copies of activity sheet		
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) I will greet students by name as they enter the classroom and ask how they are doing. Once all students are in the classroom, I will ask them to find their seats and take out their notes.		

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	<p>*I will have my copy of skeleton notes underneath the projector so students can see what page to be on (page 12 of notes packet), as well as what I write during note taking</p> <p>Once all students have gotten their notes out, I will begin with the essential questions: "How do I solve problems using percentages?" I will ask for any student responses and thoughts on these questions. "Has anyone ever split something 50-50 with you? Has a coach ever told you to give 110%? That's all percentages!"</p>
<p style="text-align: center;">10-15</p>	<p>Explain: (concepts, procedures, vocabulary, etc.)</p> <p>*Allow students enough time to write notes down as we work through the notes as a class.*</p> <p>After a short introductory discussion about percentages, we will begin notes by defining 'percent'. Percent means 'out of 100'. <i>Per</i> means 'out of' and <i>cent</i> means 100. Per + cent = out of 100. Then we will see examples of the meaning of percent: 100 cents in a dollar, 100 years in a century, 100 centimeters in a meter.</p> <p>Continue filling in the notes by converting percentages to fractions as well as decimals. Changing a percent to a fraction is putting the number over 100 (the fraction bar meaning 'out of'). To get a decimal, simply take the given number and divide by 100. (Can either use a calculator or move the decimal place left 2 spaces.) Then I will introduce the percent equation:</p> $18\% \text{ of } 30$ $\frac{18}{100} \cdot 30 = n$ $5.4 = n$ <p>Explain that 'of' means multiplication. 18% is changed into a fraction, then computation is carried out. Continue on in the notes with the examples using the percent equation (may need to manipulate the equation and place 'n' in different positions to solve given problems). Students will actively think through the examples, telling me what to write, instead of me simply writing what they should do.</p> <p>*see notes sheet for solved example problems with work shown*</p> <p>If students are understanding each type of example problem, not all of those examples need to be completed as a class and we can skip over some. At least one of each type of example will be completed as a class.</p>
<p style="text-align: center;">25-30</p>	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>Students will be asked to complete the last example problem in the notes, with work shown, and get it checked by the teacher. If correct answer is shown, the student will receive the activity sheet and can begin working. Students can work with a partner of their choosing.</p> <p>*Students have done a Maze sheet prior to this, so they know how to complete it</p> <p>Activity Sheet Instructions:</p> <ul style="list-style-type: none"> -students can work with a partner as long as they stay on task -All work needs to be shown either on activity sheet or separate sheet of paper -answers need to be labeled with '%' if applicable -turn in to tray if completed -if confusions arise, ask me questions, or ask another student
<p style="text-align: center;">5</p>	<p>Review (wrap up and transition to next activity):</p> <p>When there are about 5 minutes left of class, I will ask if there are any other questions or major confusions the class has.</p> <p>If students do not finish the worksheet, it is homework and needs to be turned in at the end of the unit, prior to the unit test.</p> <p>The bell dismisses the class, but students are not to gather at the door.</p>
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check-</p>	<p>Summative Assessment (linked back to objectives) End of lesson: N/A</p>

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in strategies, etc.

During work time, I will be walking around the classroom checking in with students to see if they have any questions and if they are on task and displaying understanding of the content.

During worktime, if the same question keeps occurring from multiple students, I will regroup the class and go over that specific question with everyone to help with the confusion.

Consideration for Back-up Plan:

If a student is not understanding the percent equation, I can explain the percent proportion method.

If students are not on task when working with a partner, the students will be asked to move away from one another and work alone.

If students complete the activity worksheet, they will remain in the classroom and can help peers or can have free time on their phones as long as they are not distracting those who are still working.

If applicable- overall unit, chapter, concept, etc.:

Summative assessment will be given at the end of the unit.

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):

Overall, the students understood the content and were able to complete the Maze activity. However, I don't feel great about this lesson because of a lot of small things.

During notes, I didn't pay enough attention to what the screen showed so sometimes I was writing the notes, but my hand covered what I had written. I should have been checking the screen to see what they could see projected on the screen.

Using the overhead projector takes practice and getting used to.

The students participate while taking notes by answering questions throughout. Instead of just lecturing, students can lead the class through notes by an 'ask and answer' technique. A few example problems can be skipped if students are understanding how to do it, as long as it is ensured students are understanding.

Having enthusiasm and good energy during notes keeps students engaged.

As a better transition between notes and the activity, I should have asked if there were any questions or confusions before giving the activity to any of the students.

Regarding the Maze activity, some students may complete it very quickly. Part of their speed may be from a lack of showing work, so ask them to go back and show all their work. In hindsight, before giving the Maze activity I needed to explicitly instruct them to show all their work. Be sure to give instructions on how to complete the activity, especially when the students haven't completed this type of activity prior.

On a future lesson and activity, I will provide space for work to be shown.

Once students finish the activity, let them check their answers to check for understanding of percentages and how to solve problems and set up equations.

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Topic: Percent									
Essential Question: How do I solve problems using percentages?									
Percent									
The meaning of <i>percent</i> is easy to remember because we “cent” in a lot of places	There are _____ <i>cents</i> in a dollar. There are _____ years in a <i>century</i> . There are _____ <i>centimeters</i> in a meter.								
Rewriting percentages as fractions (“out of 100”) and decimals	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Fraction</th> <th style="width: 50%; text-align: center;">Decimal</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">23%=</td> <td></td> </tr> <tr> <td style="padding: 5px;">5%=</td> <td></td> </tr> <tr> <td style="padding: 5px;">102%=</td> <td></td> </tr> </tbody> </table>	Fraction	Decimal	23%=		5%=		102%=	
Fraction	Decimal								
23%=									
5%=									
102%=									
<i>Percent Equation</i>	18% of 30								
Solve Each:	What is 20% of 48?								
	What is 75% of 180?								
	What percent of 42 is 28?								
	What percent of 48 is 18?								

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	What percent of 150 is 350?
	55% of what number is 231?
	165% of what number is 132?
	8% of what number is 1.2?
	A set of golf clubs are regularly priced at \$600 and now are on sale for 40% off. What is the sale price of the golf clubs?
	Jack scored $\frac{42}{50}$ on his history quiz. What is his score in decimal form? What percent did Jack score?
	Kayla scored $\frac{42}{40}$ on her chemistry quiz. What is her score in decimal form? What percent did Kayla score?