

WEST CHESTER UNIVERSITY LESSON PLAN TEMPLATE	
Lesson Day	Thursday 11/07 System of equations
How will this lesson support the learning goal? (1c: Setting Instructional Outcomes)	This lesson will help students gain a better understanding of how to find solutions for linear equations. The students will learn the addition/subtraction method of solving systems of equations is also called the method of elimination.
PA Standards and Other Appropriate Professional Standards (1c: Setting Instructional Outcomes) http://www.pdesas.org/Standard/view or https://www.pdesas.org/Page?pagelid=11 <i>List the Pennsylvania Standard(s) relevant for this lesson</i>	8.EE.C.8a 8.EE.C.8b Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because the points of intersection satisfy both equations simultaneously. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.

<p style="text-align: center;">ISTE (Technology) Standards (IF APPROPRIATE)</p> <p style="text-align: center;">(1c: Setting Instructional Outcomes)</p> <p style="text-align: center;">www.iste.org / ISTE Standards for Educators</p> <p><i>When addressing this section, you should include the standard number and the sub-component (e.g., 3a, 4a-c, etc.). Also, explain how the unit or lesson explicitly incorporates at least one standard (standard 3-7 only). Describe where in the learning plan there will be evidence that the standard selected will be integrated into the learning experience.</i></p>	
<p style="text-align: center;">Objective(s)</p> <p style="text-align: center;">(1c: Setting Instructional Outcomes)</p> <p><i>Taking into consideration the learning goal, what is the objective(s) of this lesson that will support the progress toward the learning goal?</i></p> <p><i>The statement should be directly observable (use verbs that can be measured).</i></p>	<ol style="list-style-type: none"> 1. I can identify the solution(s) to a system of two linear equations in two variables as the point(s) of intersection of their graphs. 2. I can solve a system of two equations (linear) in two unknowns algebraically.

Academic Language

(1a: Demonstrating Knowledge of Content and Pedagogy)

What language will students be expected to utilize by the end of the lesson?

Consider Language function and language demands (see Lesson Plan User Guide).

What key terms are essential?

What key terms are essential to develop and extend students' academic language?

What opportunities will you provide for students to practice the new language and develop fluency, both written and oral?

1. Solution
2. System of equations
3. Word problem
4. Variables
5. Substitution
6. Distribution
7. Elimination method

Materials/Resources

(1d: Demonstrating Knowledge of Resources)

What texts, digital resources, & materials will be used in this lesson? How do the materials align with the learning objectives/outcomes? If appropriate, what educational technology will be used to support the learning outcomes of this lesson? How do the resources support the learning objectives?

Cite publications and any web resources.

1. White board
2. Dry erase markers
3. Notebook
4. Pencil
5. Word problems worksheet
6. Exit activity

Anticipatory Set

(1a: Demonstrating Knowledge of Content and Pedagogy)

5 minutes

How will you set the purpose and help students learn why today's lesson is important to them as learners?

How will you pique the interest or curiosity regarding the lesson topic?

How will you build on students' prior knowledge?

How will you introduce and explain the strategy/concept or skill?

Provide detailed steps

1. The students will complete the equation question in the Figure Sam Out learning center.
2. The students will figure out the solution for the individual equation when the variable X is given.
3. The teacher will solve the equation by substituting the value of x to find the value of y .
4. The teacher will explain that the students will be learning to find solutions to two equations.

<p style="text-align: center;">Instructional Activities</p> <p style="text-align: center;">(1a: Demonstrating Knowledge of Content and Pedagogy; 1e: Designing Coherent Instruction)</p> <p><i>Exploration (Model): How will students explore the new concepts? How will you model or provide explicit instruction?</i></p> <p><i>Guided Practice: How will you provide support to students as they apply the new concept? How will you allow them to practice (with teacher support)?</i></p> <p><i>Independent practice: How will students review and solidify these concepts to be able to use this new knowledge? How will you monitor and provide feedback?</i></p> <p style="text-align: center;"><i>Provide detailed steps.</i></p>	<p>We have 14 coins in our pocket, all of which are dimes and quarters. If the total value of our change is \$2.75, how many dimes and how many quarters do we have?</p> <ol style="list-style-type: none"> 1. The teacher will ask a student to read the problem. 2. The teacher will draw pictures as the problem is being read. 3. The teacher will conduct a class discussion to figure out the information from the word problem that was given. 4. The teacher will ask a student to write the first equation. $D+Q = 14$ 5. The teacher will ask the students the amount of a dime and a quarter. 6. The teacher will tell students to use those values to write the second equation. $.10D + .25Q = 2.75$ 7. The teacher will tell students to multiply the second by 100 to get rid of the decimals. 8. The teacher will use elimination to find the number of dimes and quarters and the students will assist in solving the equations. 9. Solutions: 9 quarters and 5 dimes 10. The students will notate everything the teacher writes. 11. The teacher will tell students to turn their paper around to practice what they just learned.
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<p style="text-align: center;">Closure</p> <p style="text-align: center;">(1e: Designing Coherent Instruction)</p> <p style="text-align: center;"><i>10 minutes</i></p> <p><i>How will students share or show what they have learned in this lesson?</i></p> <p><i>How will you restate the teaching point and clarify key concepts?</i></p> <p><i>How will you provide opportunities to extend ideas and check for understanding?</i></p> <p><i>How will this lesson leads to the next lesson?</i></p>	<p style="text-align: center;">Exit Activity</p> <p>Three coffees and two muffins cost a total of 7 dollars. Two coffees and four muffins cost a total of 8 dollars. What is the individual price for a single coffee and a single muffin?</p> <ol style="list-style-type: none">1. The students will complete this activity with a friend or individually.2. The teacher will check students' understanding as they work.3. The teacher will go over the problem with the students4. The students will keep the activity sheet to help them study. <p>Equations:</p> <ol style="list-style-type: none">1. $3c+2m=7$2. $2c+4m=8$ <p>Solutions: coffee \$1.50 and muffin \$1.25</p>
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Differentiation

(1e: Designing Coherent Instruction)

What differentiated support will you provide for students whose academic development is below or above the current grade level?

What specific differentiation of content, process, products, and/or learning environment do you plan to employ to meet the needs of all of your students?

How does your lesson support student differences with regard to linguistic, academic, and cultural diversity?

How will your lesson actively build upon the resources that linguistically and culturally diverse students bring to the experience?

How will your lesson will be supportive for all students, including English Language Learners, and build upon the linguistic, cultural, and experiential resources that they bring to their learning?

How will your lesson is designed to promote creative and critical thinking and inventiveness?

1. Tools will be used during the lesson.
2. Students will receive extra support from teacher
3. Lesson is relatable to students, money and food.
4. Small group instruction
5. heterogeneous grouping

<p style="text-align: center;">Accommodations</p> <p style="text-align: center;">(1e: Designing Coherent Instruction)</p> <p><i>What classroom accommodations do you plan to employ to increase curriculum access for students identified with special education needs or 504?</i></p> <p><i>Describe how these accommodations align with the current Individualized Education Plan (IEP) for each student as applicable (avoid using actual names of students).</i></p>	<ol style="list-style-type: none">1. Students may sit together to help each other or choose their own seat.2. Activities read and written for students.3. Access to calculators
<p style="text-align: center;">Modifications</p> <p style="text-align: center;">(1e: Designing Coherent Instruction)</p> <p><i>What curricular modifications and/or changes in performance standards, if any, do you plan to employ to facilitate the participation of students identified with special education needs?</i></p>	<ol style="list-style-type: none">1. Students may complete work with a partner or individually.2. Students don't have to complete the entire activities but will just need to attempt some of them.3. Answers to questions can be written down and not given orally.4. Students may use tools like a calculator to assist them.5. Students may use their notes from their math notebook to help them.

<p>Assessment (Formal or Informal).</p> <p>(1f: Assessing Student Learning)</p> <p><i>How will you and the students assess where the learning objectives, listed above, were met?</i></p> <p><i>Each formal or informal assessment should describe how it is aligned to the above objective(s).</i></p>	<ol style="list-style-type: none">1. Group discussions2. Students notes3. Exit ticket4. Figure Sam Out problem

<p style="text-align: center;">Reflection on Instruction</p> <p><i>What evidence did you collect to demonstrate that your students have met or are progressing towards the learning outcome?</i></p> <p><i>What changes or adjustments had to be made during the lesson (justify those changes) to ensure students make adequate progress in meeting the learning objective?</i></p> <p><i>What changes will have to be made to the next lesson in order for students to be on pace in meeting the overall goal of the Lesson or Unit?</i></p> <p><i>Taking good notes about each lesson will help as you develop a formal reflective narrative at the end of the SLO.</i></p>	<p>This will be completed after instruction.</p>
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Things to work on

- Switch modifications and accommodations
- Modify:content, accommodate: environment
- Building rapport with students