

## Lesson Plan Template

**Learning Segment Focus: Graphing Coins by Year Minted**

**Lesson: 3 of 3    Topic: Math & Science    Date: 3/29/21    Grade: 2**

**Student Outcomes**

Specific learning <b>objectives</b> for this lesson.	<ul style="list-style-type: none"> <li>• Given pennies, nickels, dimes, and quarters, students will work in groups to identify and sort coins by their minted years using a tally chart accurately.</li> <li>• Given an excel workbook template, students will fill in the data accurately, with each coin’s data on its own sheet and comparison data on the final sheet.</li> <li>• Given excel generated bar graphs and averages, students will answer questions about their data.</li> </ul>
Justify how learning tasks are appropriate using examples of <b>students’ prior academic learning</b> .	According to the standards, students should already know the four major coin types, their characteristics, and their values. They will have learned about graphs in previous lessons, including how to read and make simple bar graphs, line plots, and tally charts. They will integrate these two concepts together in this last lesson of the series to learn the basics of Microsoft Excel and how it can help them organize data as well as make and read graphs.
Justify how learning tasks are appropriate using examples of <b>students’ personal, cultural, linguistic, or community assets</b> .	Regardless of background, learning how to organize data and read simple graphs will be essential for all students. Some may choose business careers where graphically representing data is used every single day. Some may utilize graphs to make personal or business budgets, compare various information, create lists, or keep schedules. Even if the students never make graphs or charts after their schooling years, they are heavily used in the media to present a lot of information quickly, such as in newspapers, news channels, magazines, and sports statistics.

**State Academic Content Standards**

List the <b>state academic content standards</b> with which this lesson is aligned. Include abbreviation, number & text of the standard(s).	<p>Math:</p> <ul style="list-style-type: none"> <li>• AR.Math.Content.2.MD.D.9: Generate data by measuring the same attribute of similar objects to the nearest whole unit. Display the measurement data by making a line plot, where the horizontal scale is marked off in whole-number units. Generate data from multiple measurements of the same object. Make a line plot, where the horizontal scale is marked off in whole-number units, to compare precision of measurements Note: After several experiences with generating data to use, the students can be given data already generated to create the line plot.</li> <li>• AR.Math.Content.2.MD.D.10: Draw a picture graph and a bar graph, with single-unit scale, to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</li> </ul> <p>Science:</p> <ul style="list-style-type: none"> <li>• 2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> </ul>
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**Key Vocabulary**

What <b>vocabulary terms/content specific terminology</b> must be addressed for students to master the content?	<ul style="list-style-type: none"> <li>• Line plot</li> <li>• Bar graph</li> <li>• Data</li> <li>• Coin mint year</li> </ul>
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**Academic Language Support**

What are the <b>Academic Language Function(s)</b> (the content and language focus of the learning task represented by the active verbs within the learning objectives/outcomes) and explain how they are utilized in the lesson plan?	Students will sort coins based on their type (penny, nickel, dime, quarter) as well as their minted year. They will sort by minted year in intervals of 5 years. Coins will be organized ahead of time to ensure that there are no coins included that were minted before 2000 or after
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<p>What planned <b>Academic Language Supports</b> will you use to assist students in their understanding of key academic language to express and develop their content learning and to provide varying supports for students at different levels of Academic Language development? How do these supports address all three <b>Academic Language Demands (vocabulary, syntax, and discourse)</b>?</p>	<p>2019 so that the intervals will be equal. So, the intervals will be 2000-2004, 2005-2009, 2010-2014, and 2015-2019. Students will create a tally chart for each coin type and make a tally mark in the correct decade box to sort their data. They will enter the data in their respective places in the Excel workbook and use the resulting graphs and tables to answer questions about their data. I will also have a set of coins to walk them through the project. I will do everything over the document camera or computer as they do it in their groups, showing and explaining each step. This project is much less about a grade and more about learning the process of making and reading graphs. They will be able to participate in discussion with their group and ask me questions whenever necessary while we sort the coins and create the graphs. When it is time to answer questions about their data, they will be required to do this by themselves since they should already know how to based on previous lessons.</p>
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### Materials

<p>Materials needed by the teacher for this lesson. (such as books, writing materials, computers, models, colored paper, etc.)</p>	<ul style="list-style-type: none"> <li>• set of 200 coins (50 of each type) with extras to use as examples</li> <li>• MacBook with access to Excel template</li> <li>• document camera</li> <li>• projector</li> <li>• paper</li> <li>• pencil</li> <li>• worksheets with questions about the data</li> </ul>
<p>Materials needed by <b>students</b> for this lesson. (computers, journals, textbook, etc.)</p>	<ul style="list-style-type: none"> <li>• MacBook with access to Excel template</li> <li>• paper</li> <li>• pencil</li> </ul>

### Lesson Timeline with Instructional Strategies & Learning Tasks

Amount of Time	Teaching & Learning Activities (This should be a BULLETED LIST)	Describe what YOU (teacher) will be doing and/or what STUDENTS will be doing during this part of the lesson. (This should be VERY DETAILED)
10 minutes	<p><b>Introduction:</b></p> <ul style="list-style-type: none"> <li>• Briefly explain project</li> <li>• Prepare/gather/distribute materials</li> <li>• Split into groups</li> </ul>	<p>First, I will give my students a rundown of what the lesson will consist of and brief directions for the entire activity while they are sitting at their desks. This will hopefully prepare their minds to learn and apply the information as well as to prevent any confusion and keep everyone on track. I will list off their groups and have them get their MacBooks, paper, and pencils while I distribute the sets of coins. They will get all their materials, get into their groups, and await further instructions.</p>
45 minutes – 1 hour	<p><b>Instruction:</b></p> <ul style="list-style-type: none"> <li>• Sort coins by type</li> <li>• Sort coins by year minted in 20-year intervals using tally chart</li> <li>• Quick introduction of Excel template</li> <li>• Enter data into spreadsheets</li> <li>• Answer questions</li> </ul>	<p>To start, we will have a quick review over the 4 different types of coins. I will have 200 coins to distribute to the students. There will be four groups and each group will get one of the types (group 1 gets pennies, 2 gets nickels, etc.), with each group getting 50 coins.</p> <p>I will show them each coin up close on the document camera, pointing out the year that it was minted and explain what that means. I will remind them that we are sorting the coins based on the year they were minted. I will then have each group make a tally chart containing 4 boxes/intervals (2000-2004, 2005-2009, 2010-2014, 2015-2019). I will show them how to find the minted year on each coin type and demonstrate marking a tally in the correct box on the tally chart to represent that coin. Each student will do this with their coins, and each group should have 50 tallies total on their chart. They</p>

		<p>will also make a separate tally chart for each interval and sorting the coins by individual year. So, the group should have a total of 5 tally charts. As they finish, they will bring it to me so that I can ensure they have followed the directions. Once I have checked their chart, they will wait on the other groups to finish.</p> <p>When each group has finished making their charts, we will move on to inputting the data. I will hook up my computer to the projector and show them the Excel template and how each sheet represents a different coin, with the final sheet comparing all of the information from the other sheets. I will show them how inputting numbers in certain places may change values in other boxes and the way the graphs look. After describing what they need to do in Excel, I will use the groups' charts to input the data, having them follow along for each sheet and entering the data on their Mac that I enter on mine over the projector. As we go, I will explain what I am doing and how it affects the rest of the workbook.</p> <p>Once everyone has entered the data, I will show them the final spreadsheet and point out how it has taken data from all the other sheets to compare it all on one sheet. We will discuss the bar graphs and line plots included as well as the trends in the data (we are more likely to find more recent coins than older ones). Once we have finished the discussion, students will be given a worksheet to complete by themselves which asks questions about their data in the graphs and plots. The questions will ask them to locate certain data, compare information from the graphs, and do simple math calculations with the data.</p>
<p>5 – ? minutes</p>	<p><b>Closure:</b></p> <ul style="list-style-type: none"> <li>● Turn in work</li> <li>● Clean up and put away materials</li> <li>● Free read until everyone is done/time to move on</li> </ul>	<p>Once students have finished their worksheets, they will turn them in to me. They will clean up their coin sets and bring them to me as well. They will put away their MacBooks and clean off their desks. They will be allowed to read a book of their choice until everyone is finished or it is time to move on to the next activity, whichever comes first. Those who do not finish before moving on will be given time later to complete it.</p>

## Technology Integration

<p>Provide your <b>rationale</b> for your technology choices that accurately reflects those choices within your teaching context. <b>Identify</b> what technology(s) you are using as part of your lesson plan. <b>Describe</b> how the use of technology aligns to your learning objectives, content standards, and central focus. <b>Explain</b> how technology-based instructional strategies are essential to students accomplishing the learning objectives (beyond what could be accomplished without using the technology). <b>Specify</b> how the technology selections meet or exceed the needs/strengths of all students. <b>Justify the “fit”</b> of chosen technologies, showing how the content, instructional strategies, and technology “fit” together.</p>	<p>Students will be using their 1:1 MacBooks to help them complete this project. I will also be using a MacBook with a projector and document camera to display what I am doing at my seat and on the computer screen. They will be able to see what we are working on all at once instead of me having to walk around and assist everyone with different issues. We will be using the MacBooks to work with Microsoft Excel in order to enter data into tables which will transfer over to graphs. Students will know how to make and read simple graphs, but not with a complex software like Excel. This will be a great introductory activity to this software so that in future grade levels, they will be able to use it without templates to organize data. Using spreadsheets will be essential in the later grades, as students will be expected to make more complex charts and graphs with technology. Their future schooling or career may require making such tools. Even if they never have to make them, being able to read these tables and graphs will help them as consumers of media and entertainment in society.</p>
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### Accommodations/Modifications

<p>How might I <b>modify</b> instruction for:  <i>Remediation?</i>  <i>Intervention?</i>  <i>IEP/504?</i>  <i>LEP/ESL?</i>                  (All students who have plans mandated by federal and state law.)</p>	<p>Accommodations and modifications will depend on the students in my classroom. Some students may need something as simple as a seat close to the board or close to my desk. Others may need to be in a group with specific students who can help them throughout the activity. If any students have not yet become proficient in the skills necessary to complete the project, they may be given a different project to help them work on whatever skills they need. They may only be required to do one or two of the three parts of the project (tally chart creation, entering data, answering questions). Some may be given fewer coins in their set or fewer intervals to sort coins into. Many other strategies could be implemented depending on the students present.</p>
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### Differentiation

<p>How might you provide a variety of techniques (enhanced scaffolding, explicit instruction, contextualized materials, highlighters/color coding, etc.) <b>to ensure all student needs are met?</b>                  (All students who are not on specific plans mandated by federal and state law.)</p>	<p>Students will be working in groups on this project and allowed to help each other until the very end. If an entire group or multiple students from around the room need help with the same thing, I can call everyone's attention to the board to readdress that issue which will hopefully provide clarity. Students that may need something more challenging could be given more coins or work by themselves or in a smaller group with other students who need a challenge. As students start answering the questions, I can remind them that different information is found on different sheets, even writing that somewhere on the board to prevent confusion.</p>
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### Assessments: Formative and/or Summative

<p>Describe the <b>tools/procedures</b> that will be used in this lesson to monitor students' learning of the lesson objective(s) (include type of assessment &amp; what is assessed).</p>	<p><input type="checkbox"/> Formative / <input type="checkbox"/> Summative</p>	<p>One informal formative assessment will include me checking the tally charts to ensure that they created them correctly and followed the directions.</p>
	<p><input type="checkbox"/> Formative / <input type="checkbox"/> Summative</p>	<p>Another informal formative assessment will include me comparing their created tally chart to their Excel worksheets to ensure that they entered the data in the correct places.</p>
	<p><input type="checkbox"/> Formative / <input type="checkbox"/> Summative</p>	<p>The formal summative assessment will include their graded answers to the questions based on the data in their Excel sheets. Their grade will reflect their ability to read the graphs and input data. Since everyone's data will be the same, graphs and tables should look the same as long as students have followed directions.</p>

### Research/Theory

<p>Explain <b>connections to theories and/or research</b> (as well as experts in the field or national organization positions) that support the approach you chose and justify your choices using <b>principles of the connected theories and/or research</b>.</p>	<p>This lesson correlates well with Skinner's behavioristic view of learning. The students will be absorbing information presented to them, and simply reacting to the teacher's prompts. Their learning will be measured by their behavior (whether they are paying attention or not). He also expounded on the transfer of learning theory which explains that students can absorb information in one setting and apply it to something else. Students will have learned about graphs and coins already and will be integrating their knowledge of these topics to learn to use a computer program to make and read the graphs it produces.</p> <p>Vygotsky proposed that learning has a unique social aspect. By listening to the views of others, children can apply these to their own thinking to better understand certain concepts. That is what students will be doing by being</p>
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	<p>allowed to work together when they need help.</p> <p>This activity also allows for multisensory instruction. Students are viewing and hearing the material presented to them from the teacher (me), hearing and participating in conversation about the material with their peers, and physically sorting and recording data. They are engaging with the material instead of just passively listening to a teacher lecture to them.</p>
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### Lesson Reflection/Evaluation

<p>What went <b>well</b>? What <b>changes</b> should be made? How will I <b>use assessment data</b> for next steps?</p>	<p><i>TO BE FILLED IN AFTER TEACHING</i></p>
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Include supporting material such as slides, pictures, copy of textbook, and handouts for any activities students will be using as part of your lesson.

\*adapted from: <http://webcache.googleusercontent.com/search?q=cache:EsQcNWuG1ZoJ:web.mnstate.edu/harms/StudentTeachers/edTPA-LessonPlan.doc+&cd=2&hl=en&ct=clnk&gl=us>; <http://www.moreheadstate.edu/getmedia/cd3fd026-939f-4a47-a938-29c06d74ca01/Lesson-Plan-and-Reflections.aspx>;  
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