



Master of Educational Technology

Primary/Junior/Intermediate/Senior Lesson Planning Template

Grade(s): 6/7	Date(s): Jul 14th	Duration: 80 mins (2x 40min-block)
Lesson Topic/Title:		
Math inquiry: Looking at the impact of fast fashion on unethical labour by applying knowledge of fractions, percent, circle graphs, and financial literacy.		
Subjects: Mathematics	Number of Students: 24	
Rationale: This lesson is intended to take the mathematical skills of percentage and circle graphs beyond the level of knowledge by giving students an opportunity to apply percentages and demonstrate a deeper understanding. By providing students with opportunities to make choices, reflect on their own values, and create, this activity will foster student engagement and emphasize the relevance of mathematical literacy. This will make a difference in students' confidence and enjoyment of math and will help them retain these skills and use them in their lives.		
Big Ideas: Decimals, fractions, and percents are used to represent and describe parts and wholes of numbers. Computational fluency and flexibility with numbers extend to operations with integers and decimals.		
Curricular Competencies: Reasoning and analyzing <ul style="list-style-type: none">- Model mathematics in contextualized experiences,- Apply multiple strategies to solve problems in both abstract and contextualized situations.		

<p>Communicating and representing</p> <ul style="list-style-type: none"> - Communicate mathematical thinking in many ways. <p>Connecting and reflecting</p> <ul style="list-style-type: none"> - Connect mathematical concepts to each other and to other areas and personal interests. <p>Understanding and solving</p> <ul style="list-style-type: none"> - Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to the local community.

Content Objectives

General Objectives:	Specific Objectives:
<ul style="list-style-type: none"> • Relationships between decimals, fractions, ratios, and percents • Circle graphs • Financial literacy — financial percentage 	<p>Financial literacy:</p> <ul style="list-style-type: none"> • financial percentage calculations <p>Circle graphs:</p> <ul style="list-style-type: none"> • constructing, labelling, and interpreting circle graphs • translating percentages displayed in a circle graph into quantities and vice versa <p>Parents:</p> <ul style="list-style-type: none"> • conversions, equivalency, and terminating versus repeating decimals, place value, and benchmarks • $\frac{1}{2} = 0.5 = 50\% = 50:100$

<p>21stCENTURYCOMPETENCIES: <i>Which COMPETENCIES will be addressed and how?</i></p> <p>Critical thinking and Problem Solving/Creativity and Innovation/Collaboration/Communication/Global Citizenship/Metacognition and Reflection</p> <p>Communicating:</p> <ul style="list-style-type: none"> • I can communicate with intentional impact, in well-constructed forms that are effective in terms of audience and in relation to my purpose. • I can acquire, interpret, and present information. <p>Collaborating:</p> <ul style="list-style-type: none"> • I acknowledge different perspectives and demonstrate my commitment to working with others to plan, carry out, and achieve a common goal; evaluating group processes and results. • I can connect and engage with others to share and develop ideas. <p>Creative thinking:</p> <ul style="list-style-type: none"> • I can develop and design a body of creative work over time in an area of interest of <p>Critical and reflective thinking:</p> <ul style="list-style-type: none"> • I can identify my strengths and limits, and take responsibility for making ethical <p>Personal and social:</p>

- I can initiate positive, sustainable change for others and the environment.

LEARNING GOAL(S) I can... I will....

- I can recognize circle graphs and discuss the benefits of using a circle graph to represent data.
- I can construct circle graphs with correct components to represent the composition of costs for manufacturing a t-shirt.
- I can demonstrate my processing skills by identifying important and relevant information while researching online.
- I can organize my ideas and thinking by creating an interactive infographic that uses text, graphics, and oral presentation.
- I can work collaboratively with peers to generate, develop, refine, and implement ideas for the final product.
- I can use percentages to calculate sales tax and percentage markups for clothes.

PRIOR KNOWLEDGE Prior to this lesson, students will be able to...

Fraction, Percent, Data, Circle graphs, Financial Literacy

- Monetary value (Understand)
- Graphs can be used to represent data (Understand)
- Proper spelling, grammar, conventions (Know)
- How to communicate mathematical thinking in many ways (Know)
- How to make monetary calculations with decimal notation in real-life contexts and problem-based situations (Do)
- How to convert between fractions and percentages (Do)
- How to give and receive feedback from peers, teachers, and experts (Do)

Equity, Diversity, Inclusion, Decolonization, Anti-Racism (EDIDA) Frameworks-

Considerations:

- Consider what materials you will use
- How will you ensure all voices are included and heard?
- From what lens will the content be delivered?
- How will you present and implement the content in a way that is culturally responsive and relevant?

By applying the **Universal Design of Learning (UDL)** guidelines, with the consideration of the class profile as well as individual students' needs (**inclusive education**) in teaching mathematics in a contextualized project-based learning approach, this lesson will address social justice issues of fast fashion by visually representing data, seeing the reality behind the numbers, and raising awareness of fair trade.

- **UDL – Creating low flow access point for ALL learners to progress for success with various interests, background knowledge, and needs.**
 - Minds on/provocation activity provides support for limited background knowledge and establishes a context for learning.
 - Contextualized math inquiry optimizes personal relevance, value, and authenticity,
 - Group work and celebration of learning foster collaboration and community,

- *Develop self-assessment and reflection.*
- *Provide flexible opportunities for students to demonstrate skills (written, oral, visual presentations, and explanations), emphasizing the learning goals, not the means of achieving them.*
- *Having students assess their current understanding by using journals and exit tickets.*
- *Provide ongoing, relevant teacher and peer feedback through guided scaffolding with gradual release of responsibility. It serves as an ongoing formative assessment and gives teacher information about which students still need more support.*

DIFFERENTIATED INSTRUCTION *What will I do to assist and/or differentiate instruction for individual learners? (Materials, Delivery, Outcome)*

Encouraging multimodality:

- Multiple means of representation and expression

Outcome:

- Based on the class profile, all tasks are designed to have an accessing point that everyone will be able to do with or without support.

Get Ready, Do, Done: develop executive functioning skills

- Provide an example and discuss it with the class.
- Why is it an exemplary piece of work?

Gradual release of responsibility with modelling to scaffold the learning process throughout the entire lesson:

- I do, you watch,
- I do, you help,
- You do, I help,
- You do, I watch.

Peer Mentoring and small group:

Students will work in heterogeneous groups so struggling students will have a group member who demonstrates a thorough understanding of the concept(s) to work more closely with.

One-on-One:

- Circulate in the classroom and check in with struggling students one-on-one by asking key questions to identify exactly where they are having difficulty (formative assessment).

Extracurricular/support:

- will be given to those students who need the added support with researching information, making the infographics, and presenting their product.

Manipulatives (physical circle graphs)

- available for hands-on experiences to help visualize and understand the abstract concepts of percentages

Other accommodations:

- Pre-teach vocabulary.
- Flexible seating allows students access to the preferred working environment to avoid distractions and stay on task.
- Creating checklists for students to break tasks up into smaller steps and help them complete work on time.

Simplified Example with larger texts (modifications)

- Offer handouts with notes and highlighting critical concepts for reference.

Technology:

- Audio recordings, voice to text
- Using visuals to teach abstract concepts
- Drawings and examples included to illustrate the meaning of terms

MATERIALS:

Teaching Resources:

- Whiteboard (record any key learnings/ideas),
- PowerPoint presentations with visuals and audio,
- Group work graphic organizer: to record and guide their thinking.
- Additional text and visuals as needed.

Student Resources:

- Digital math journal for reflection
- Writing utensils

Technology:

- iPads with Apps: Kahoot! and Quizzes
- Laptops
- Canva, Genially
- Padlet

INTRODUCTION/MINDS-ON/PROVOCATION (Connecting to prior knowledge and setting the context for learning)

- 10 mins

1. To start the lesson, the students are asked to check the labels of their favourite t-shirts:
 - Remind them of where their clothes come from and focus on the composition of the t-shirt.
 - The students will be reminded of the previous science and social studies lessons about fast fashion and its impact on climate change and social justice.

Think-pair-share: (A picture of my own t-shirt tag will be posted as an example to model the discussion)

- Ask students to discuss the following questions in pairs, then invite a few to share with the entire class (the questions are posted on the board for visual reference)
- What is your t-shirt made of? (For example: polyester, cotton, viscose, etc.)
- Why do you think these materials are chosen for making t-shirts? Any potential environmental and social impacts?
- What's the percentage of each material written on the label and what does that mean?

CRITICAL GUIDING QUESTIONS:

- Where are your clothes manufactured? Why are they made there?
- What are the commonly used materials for making a t-shirt? Why are they commonly used for making t-shirts? Any potential environmental and social harms of using these materials?

<p>2. Compare the real cost of their T-shirt to how much the students actually paid just for the brand:</p> <ul style="list-style-type: none"> • Calculate the percentage of markup they paid just for the brand name. <p>3. Construct circle graphs:</p> <ul style="list-style-type: none"> • As a group, students will construct at least 2 circle graphs together with the correct components to show the composition of the cost of a t-shirt. • Free websites available for making circle graphs (pie charts): Canva, Pie Chart Maker, Visme, Rapid Tables, and Meta-Chart. <p>C) Experience 3 (Challenge) – (15 min) After the students have constructed the circle graphs and checked in with the teacher, they are asked to create interactive infographics using Genially, Canva, or a platform of their choice (approved by the teacher) to present the circle graphs with a visually appealing design, highlighting the differences of what does a t-shirt cost if they were made in developing vs. developed countries of their choice.</p> <ul style="list-style-type: none"> • Must include at least 2 circle graphs with correctly labeled components such as title, date, legend, and the source. • Genially and Canva will be modeled by the teacher to briefly introduce the platforms. <p>D) Experience 4 (Challenge) – (10 mins)</p> <ol style="list-style-type: none"> 1. Based on their findings and the circle graphs, explore and investigate the following questions as a group: <p>DI) Why do you think it's best to use circle graphs to represent those data? DII) What did you notice by comparing these two circle graphs? DIII) Why do you think the cost of a t-shirt differs a lot depending on where it was manufactured?</p>	<p>- Can you work collaboratively with peers to generate, develop, refine, and implement ideas for your project?</p> <p>- Can you initiate positive, sustainable change for others and the environment? - Can you organize your ideas and thinking by creating, developing, and designing creative work using multimodality?</p>
<p>CONSOLIDATION/CONCLUSION: 10 mins</p> <ul style="list-style-type: none"> ▪ As a consolidation to this lesson, students will be reminded to be concise in their reflection and response of using circle graphs to visually represent data in their digital math journal using multimodal texts. ▪ As the students are walking out of the classroom, each of them will share one thing they learned today with the teacher (exit ticket). 	<p>CRITICAL GUIDING QUESTIONS:</p> <ul style="list-style-type: none"> - Can you reflect on your own learning through the digital math journal? - How has your understanding of visually representing statistics through circle graphs improved from today's lesson? - How might this lesson help you in the future? - What questions do you still have?

ASSESSMENT (STRATEGIES, TOOLS)-DIAGNOSTIC, FORMATIVE, SUMMATIVE

Diagnostic (Kahoot): Identify students' prior knowledge with percent, fraction, and circle graphs using the following 2 activities:

- Clothes' labels
- Kahoot! quiz

Formative:

- Consistent and descriptive feedback will be provided to individual students orally based on their input to partners or to the whole group.
- Close monitoring and informal observation of individual students' responses and group work to assess their understanding.
- Constructive peer feedback is also encouraged by means of oral descriptive feedback to partners and groups.
- Self-assessment is encouraged based on the co-constructed rubric prior to submission.
- Self-reflection will be done in the form of a math journal and exit ticket at the end of the lesson.

Summative: (Co-constructed one-point rubric for infographics)

- Based on the interactive infographics, written responses, and reflections, the teacher will be able to assess the students' understanding of representing percentages using circle graphs to create engaging infographics.

Grows How you can strengthen your work	Criteria	Grows Strong aspects of your work
	<p>Circlegraph</p> <p>Components of circle graphs (title, legend, data) are included properly for data visualization.</p>	
	<p>Content</p> <p>Content covers topics in-depth with detailed, accurate, and relevant.</p> <p>Information is systematically organized to support the main message</p>	
	<p>Design/layout</p> <p>The layout is clear for understanding and visually appealing.</p> <p>Visuals show connections to content and create a visual flow.</p> <p>Multimodal texts (video, image, audio, etc.)</p>	

		are linked to enhance the presentation.	
		Fonts are legible and consistent.	
		Bibliography	
		Sources are properly cited in APA format.	

REFLECTION:

1. Were my students successful in meeting the learning goals? How do I know?
2. Did my instructional decisions meet the needs of all students? If not, what are my next steps?
3. What worked well? Why?
4. What will I do differently
 - a. When teaching this lesson again?
 - b. For the subsequent lesson?
5. What are the next steps for my professional learning?