

## LESS IS MORE (LEVEL 3)

<b>Description</b>	Learners will look into home expenses and identify how they can reduce extra costs while maintaining or improving the quality of life for the family.
<b>Leading Question</b>	Can we spend less on our household expenses?
<b>Subjects Covered</b>	Numeracy and Literacy
<b>Total Time Required</b>	9-10 hours over 7 days.
<b>Resources Required</b>	Paper and pencil
<b>Learning Outcomes</b>	By the end of this project, learners will be able to: <ol style="list-style-type: none"> <li>1. Add and subtract numbers with up to 3 digits</li> <li>2. Multiply and divide within 100.</li> <li>3. Estimate the answer to a calculation</li> <li>4. Solve problems using number facts</li> <li>5. Interpret and present data using bar charts, and tables</li> <li>6. Develop their use of formal mathematical knowledge to interpret and solve problems, including financial mathematics</li> <li>7. Reason abstractly and quantitatively.</li> <li>8. Express relations between variables graphically</li> </ol>
<b>Previous Learning</b>	Fractions, percentages and arithmetic operations.
<b>Supervision required</b>	Medium

## DAY 1

Today you will learn about life expenses and how to use your money wisely.

<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>● Help your parents with managing house expenses. Hence, this project is to learn more about house expenses, and see if we can survive with less expenses.</li> <li>● House expenses refers to the money spent to buy things needed to keep the household functioning well on a day-to-day basis.</li> <li>● This project is only focusing on house expenses; it excludes: Education, Health, Travel, Transportation, and others.</li> </ul>
<b>15 minutes</b>	<ul style="list-style-type: none"> <li>● A parent should lead a brainstorming activity on house expenses, with the aim of identifying the main expense categories: <u>food &amp;</u></li> </ul>

	<p><u>beverages, toiletries and detergents, rent/mortgage &amp; utilities, and furniture &amp; appliances.</u></p> <ul style="list-style-type: none"> <li>● Brainstorming is best done individually first: for 5 minutes everyone silently notes down the categories she/he can think of. Then, each in turn mentions one of their categories, and they skip the ones that have been mentioned already. The parents need to show the other family members how the home expense can be clustered into the four above mentioned categories. Hopefully all family members agree on these categories (as the project tasks are based on these).</li> </ul>
<p><b>15 minutes</b></p>	<ul style="list-style-type: none"> <li>● Start by looking into expenses within <u>rent, utilities and services</u>. Some of the definitions for these expenses are: <ul style="list-style-type: none"> <li>- Rent - monthly cost paid to a landlord for the use of property or land.</li> <li>- Mortgage – monthly payments made to the bank/lending institution as payment for the ownership of the house/property you currently stay in.</li> <li>- Utilities – payments made for services used at home such as water, electricity, landline/phone service, internet, other subscriptions</li> <li>- Services – like cleaning, laundry or others</li> </ul> </li> </ul> <p>Think about the various ways in which they can collect information on these expenses. Some of the options could be</p> <ul style="list-style-type: none"> <li>- interviews with parents to find out the current costs</li> <li>- check current recipes of the services</li> <li>- get estimates of these from an adult</li> </ul>
<p><b>20 minutes</b></p>	<ul style="list-style-type: none"> <li>● Look for ways and thoughts on how to reduce these costs. Ask yourself and /or your parents/family members questions to help you learn about cost cutting strategies.</li> </ul> <p>Suggested questions:</p> <ul style="list-style-type: none"> <li>- How can we reduce the cost of .....</li> <li>- Which of these cost cutting suggestions will have a positive impact on our life? (or in simpler words: which of these can make us more healthy, or make us more happy if we used the saved cost somewhere else...etc)</li> </ul>

	<p>Some ideas on how to cut costs</p> <ul style="list-style-type: none"> <li>- Barter trade</li> <li>- Cheaper alternatives</li> <li>- Free/used alternatives available</li> <li>- Purchase of used items</li> <li>- Reduce on the quantities</li> <li>- Discounts and offers from other companies</li> <li>- Check out substitute service providers who may provide services at cheaper rates</li> <li>- Buying in bulk</li> </ul> <p>Find out the new cost of the item with the new proposed cost savings strategy and summarize the information in a table like one below:</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Cost Saving Strategy</th> <th>Old cost</th> <th>Proposed new cost</th> <th>Cost saving</th> </tr> </thead> <tbody> <tr> <td>Rent</td> <td>Alternatives: find a cheaper house to rent</td> <td>\$300</td> <td>\$250</td> <td>\$50</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">Total savings</td> <td></td> </tr> </tbody> </table> <p>Cost saving = old cost – proposed new cost Total savings = sum of all savings per item</p>	Item	Cost Saving Strategy	Old cost	Proposed new cost	Cost saving	Rent	Alternatives: find a cheaper house to rent	\$300	\$250	\$50																					Total savings				
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<p><b>15 minutes</b></p>	<ul style="list-style-type: none"> <li>● Prepare a presentation on your suggestions:</li> <li>● You can use a drawing, role playing, or a compelling speech for example.</li> <li>● The presentation must clearly state the suggestion, justification, and expected cost reduced.</li> </ul>																																			
<p><b>10 minutes</b></p>	<ul style="list-style-type: none"> <li>● Present, and parents/family members should note down their assessment of the presentation.</li> </ul> <p>Parents/family members will provide feedback on:</p> <ul style="list-style-type: none"> <li>- What they found creative about the presentation and ideas,</li> <li>- What could be improved, why, and orientations regarding how.</li> </ul> <p>Make the suggestion edits and revisions to their work.</p>																																			

<b>5 minutes</b>	Note down the approved cost cutting suggestions.
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## DAY 2

Today you will learn about how much you spend on food and beverages in the house.

<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>15 minutes</b>	<ul style="list-style-type: none"> <li>You are going to be focusing on the foods and beverages (F&amp;Bs) expenses, toiletries and detergents, and furniture and appliances over the next 4 days. You will engage to understand what wastage may be happening, the costs of the F&amp;Bs, and develop a cost reduction plan for the home.</li> <li>Today, we will focus on identifying the wasted F&amp;Bs. Once this is determined, you will then determine the cost of the wasted F&amp;B and can come up with suggestions to reduce costs without having any negative effects on the quality of life in the next few days.</li> </ul>
<b>Continued to end of day</b>	<ul style="list-style-type: none"> <li>Note down all food, snacks, water, and drinks that will be served today for all the family members in your household. This can best be done by populating a table for all family members. It is also important to determine the quantities of wasted F&amp;Bs in each category. You can create their own table or use the template provided here Day 2 worksheet for template.</li> </ul>
<b>10 minutes</b>	<ul style="list-style-type: none"> <li>Present the sheet with the identified wasted F&amp;Bs to the parents and family members to critique and revision. Parents/family members will provide feedback on:               <ul style="list-style-type: none"> <li>New ideas that occurred to them based on what the child presented,</li> <li>Some other aspects that learners can think about</li> </ul> </li> </ul> <p>Make edits based on the feedback provided.</p>

## DAY 3

Today you will use division to calculate how much money is spent on food and beverages in your home.

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> <li>● Identify the cost of the food items you noted down in the worksheet yesterday. To do this you need the items' price (of the same brand and size). Think about the different ways you can obtain the cost information for the food items.</li> <li>● Some options on how they can get this information include: <ul style="list-style-type: none"> <li>○ The supermarket/shop receipt. Ask your parents/family members for the receipts of the different items from the last shopping that was done in the household</li> <li>○ A price list (either paper copy, or the phone application of the supermarket/shop if available).</li> <li>○ Internet search on the supermarket website or any other supermarket you can look up on the internet</li> <li>○ Collect the information through an interview with a shopkeeper in a nearby shop or supermarket.</li> <li>○ Approximate price by asking an adult family member/parent/neighbour</li> </ul> </li> <li>● Add the cost details to the worksheet developed on Day Two in the cost column and at the bottom, compute the total cost of food consumed that day.</li> </ul>
1-2 hours	<ul style="list-style-type: none"> <li>● Using the table/Worksheet that was filled the day before, calculate the costs of wasted food items, that is food not consumed and gets thrown away, with the help of parents.</li> <li>● Costs are calculated according to the quantity consumed. Example 1: if the egg cartoon containing 30 eggs is for 15 \$, and 2 eggs are consumed, then the cost of 2 eggs is: <math>(2/30)*15=1\\$</math>.</li> <li>● Example 2: if 1 L of fresh milk costs 13 \$, 600 ml of milk are for: <math>(600/1000)*13= 7.8 \\$</math></li> <li>● * If you have not yet studied division or are having a hard time with division, then parents/family members can help, or provide estimates of the daily or monthly costs, along with estimates of the value of waste.</li> <li>● Add the wasted F&amp;Bs cost details to the worksheet developed on Day 2 and compute the total cost of wasted F&amp;Bs for the day.</li> </ul>
10 minutes	<p>Present the sheet with the identified costs of the food items and the costs of wasted F&amp;Bs to the parents and family members to critique and revision. Parents/family members will provide feedback:</p>

	<ul style="list-style-type: none"> <li>- What they loved about the presentation,</li> <li>- What could have been improved,</li> </ul> <p>Make the suggested edits and revise your work.</p>
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## DAY 4

Today you will use addition, subtraction, multiplication and division to help find a way to reduce food and beverage costs.

Suggested Duration	Activity and Description
<b>20 minutes</b>	<ul style="list-style-type: none"> <li>● Calculate the estimated value of wasted F&amp;Bs per month. First think through how they can estimate this cost and why it is important to know this cost.</li> <li>● To compute the estimated value of wasted F&amp;Bs per month is the daily value computed on day 3 above is multiplied by 30 (since a month has ~30 days on average).</li> <li>● This is the estimated/projected monthly reduced cost for F&amp;Bs.</li> <li>● After computing the estimated value of wasted F&amp;Bs, think about why it is important to know this value. Some of the probing questions could be: <ul style="list-style-type: none"> <li>○ What is the monthly value of wasted F&amp;Bs?</li> <li>○ In what other ways can this money be used by the family? (Saved, used to purchase other essential commodities or expenses in the home etc.)</li> <li>○ Can we save the expenses on wasted food, and instead donate this to feed a hungry person or find ways to store leftovers or plan meals in a way that prevents waste? How many days do you think a hungry or homeless person can survive on the wasted F&amp;Bs?</li> </ul> </li> </ul>
<b>30 minutes</b>	<p>Think of and discuss ways to reduce costs without having any negative effects on the quality of life. Prepare to present the ideas to the parents/family members.</p> <p>Some ideas on how you can reduce costs include:</p>

	<ul style="list-style-type: none"> <li>- Only buying essential and healthy food stuffs and avoiding junk food.</li> <li>- Asking the different family members to only get the food amount that is exactly enough for them.</li> <li>- Make savings by deducting the monthly wasted F&amp;Bs amount from the monthly food expenses.</li> </ul>
<b>20 minutes</b>	<p>Present your ideas and suggestions to your parents/family members. Parents/family members provide feedback:</p> <ul style="list-style-type: none"> <li>- The suggestions that they approve and why</li> <li>- The suggestions that they don't approve and why</li> <li>- Additional suggestions</li> </ul> <p>Make the suggested edits and revise based on feedback received from parents/family members to your work.</p>

## DAY 5

Today you will learn about how much you spend on toiletries and detergents in the house.

Suggested Duration	Activity and Description
<b>45 minutes</b>	<ul style="list-style-type: none"> <li>● Definitions: <ul style="list-style-type: none"> <li>○ Toiletries refers to things/materials used in washing and taking care of one's body and for cleaning their environment. These may include soap, toothpaste, shampoo etc</li> <li>○ Detergents are water-soluble cleansing agents which combine with impurities and dirt to make them more soluble and differ from soap in not forming a scum with the salts in hard water.</li> </ul> </li> <li>● You will need to think about how you will collect information on toiletries and detergent usage in your home.</li> <li>● You may use the following methods to collect the information. <ul style="list-style-type: none"> <li>○ Check all toiletries used by family members</li> <li>○ Ask every member about their monthly consumptions</li> <li>○ Similarly, check all detergents used per month</li> <li>○ Check the receipts used to purchase toiletries and detergents from the most recent month</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Interview the parents or an adult to get estimates on household consumption for toiletries and detergents</li> <li>● Track the toiletries and detergent daily usage by household members using a tool similar to the one used for F&amp;Bs.</li> <li>● Calculate the costs of toiletries and detergents consumed by the family in 1 month             <ul style="list-style-type: none"> <li>○ Hint: Multiply the daily usage by average number of days (30)</li> </ul> </li> </ul>																																			
<p><b>20 minutes</b></p>	<p>Now think of and discuss ways to reduce costs without having any negative effects on the quality of life.</p> <p>Some ideas on how to cut costs</p> <ul style="list-style-type: none"> <li>- Barter trade</li> <li>- Cheaper alternatives</li> <li>- Free/used alternatives available</li> <li>- Purchase of used items</li> <li>- Reduce on the quantities</li> <li>- Discounts and offers from other companies</li> <li>- Check out substitute service providers who may provide services at cheaper rates</li> <li>- Buying in bulk</li> </ul> <p>You can use a table like the one below to summarize their work</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Cost Saving Strategy</th> <th>Old monthly cost</th> <th>Proposed new monthly cost</th> <th>Cost saving</th> </tr> </thead> <tbody> <tr> <td>Toilet paper</td> <td>Alternatives: find a cheaper house to rent</td> <td>\$50</td> <td>\$25</td> <td>\$25</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">Total savings</td> <td></td> </tr> </tbody> </table>	Item	Cost Saving Strategy	Old monthly cost	Proposed new monthly cost	Cost saving	Toilet paper	Alternatives: find a cheaper house to rent	\$50	\$25	\$25																					Total savings				
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<b>10 minutes</b>	<p>Present your ideas (the costs and monthly consumption, as well as ideas for cost reduction to the parents) and suggestions to their parents/family members. Parents/family members provide feedback:</p> <ul style="list-style-type: none"> <li>- What they loved about the presentation,</li> <li>- What could have been improved,</li> <li>- The parents' approval on the cost cutting suggestions</li> </ul> <p>You make the suggested edits and revise based on the feedback received from parents/family members to your work.</p>

## DAY 6

Today you will use addition, subtraction, multiplication and division to help find a way to reduce toiletries and detergents costs.

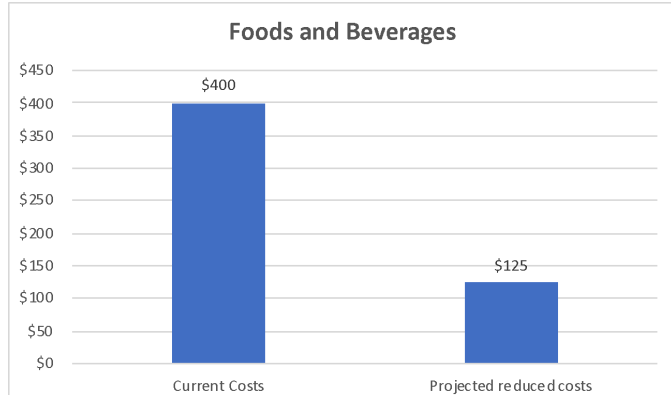
<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>10 minutes</b>	<p>Today, you will identify the costs of all the furniture and home appliances and figure out ways to reduce these costs while improving the quality of life (or at least without compromising the current quality of life for the family).</p> <ul style="list-style-type: none"> <li>● You will need to find out all the furniture and home appliances currently available and used at home.</li> </ul> <p>This may be done by:</p> <ul style="list-style-type: none"> <li>- Checking all furniture sets/items in the house</li> <li>- Trying to identify their original price: either by looking at receipts, asking parents, visiting the retailer's website, or 'guesstimating'</li> <li>- Similarly, check all home appliances (kitchenware, electrical appliances...), and identify their original price</li> <li>- Also, add the costs of lamps consumed and need replacement monthly</li> </ul> <p>You can use a table.</p>
<b>45 minutes</b>	<ul style="list-style-type: none"> <li>● Calculate the costs of all furniture and appliances in the house.</li> <li>● To estimate the monthly consumption, we estimate a 20% depreciation for all furniture and home appliances per year. This means: a piece of furniture or appliance is expected to last for 5 years; hence we estimate the yearly consumption by dividing its</li> </ul>

	total price by 5. Then for monthly consumption, you divide the yearly consumption by 12.
<b>20 minutes</b>	<p>Think of ways to reduce costs without having any negative effects on the quality of life. Some of the reflection questions could be:</p> <ul style="list-style-type: none"> <li>• Do we need all the furniture and appliances that we have?</li> <li>• Is there a way that they can last for more than 5 years?</li> </ul> <p>You can also reflect on some of the cost saving strategies used in the other expense areas to come up with creative ways of making savings on furniture and appliances.</p>
<b>10 minutes</b>	<p>Present your ideas and suggestions to your parents/family members. Parents/family members should provide feedback:</p> <ul style="list-style-type: none"> <li>- what they loved about the presentation,</li> <li>- what could have been improved,</li> <li>- and the parents' approval on the cost cutting suggestions</li> </ul> <p>Make the suggested edits and revisions received from parents/family members to your work.</p>

## DAY 7

Today you will set up a plan for future spending and reflect on what you have learned.

<b>Suggested Duration</b>	<b>Activity and Description</b>
<b>10 minutes</b>	<p>The last activity of this project is to design and implement an action plan to reduce the family living costs as per the approved suggestions.</p> <p>The main tasks are:</p> <ul style="list-style-type: none"> <li>- Calculate the current total monthly living costs of the family</li> <li>- Present what the reduced costs would be if all the cost-cutting suggestions were implemented.</li> <li>- Set a plan to implement all the suggestions, with clear monitoring roles amongst family members to ensure the implementation</li> <li>- Observe the cost reduction over 2 months to verify whether expenses have gone down</li> </ul>

	<p>- (If parents agree, to provide a gift of a value of 10% of the saved amount after 2 months)</p>															
<p><b>30 minutes</b></p>	<p>Prepare a display showing the current costs (from all categories) versus the projected reduced costs. You can develop a table (like the one below) or bar graphs (like the one below) to illustrate this.</p> <p>Table showing current cost vs projected reduced costs</p> <table border="1"> <thead> <tr> <th>Expense Category</th> <th>Current costs</th> <th>Projected reduced costs</th> </tr> </thead> <tbody> <tr> <td>Rent/Mortgage and utilities</td> <td></td> <td></td> </tr> <tr> <td>Foods and Beverages (F&amp;Bs)</td> <td></td> <td></td> </tr> <tr> <td>Toiletries and detergents</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Bar Graph showing current cost vs projected reduced costs:</p> <p>If the current cost of F&amp;Bs is \$400 and cost of wasted F&amp;Bs also known as projected reduced cost is \$125, then your bar graph who look like the one below:</p>  <p>Some guidelines on how to plot the bar graph using the example above:</p> <ul style="list-style-type: none"> <li>o Draw a vertical line and horizontal line starting at the bottom of the vertical line going right as shown above. These are your axes. The y-axis is the vertical line in the graph and the x-axis is</li> </ul>	Expense Category	Current costs	Projected reduced costs	Rent/Mortgage and utilities			Foods and Beverages (F&Bs)			Toiletries and detergents					
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	<p>the horizontal line. Write zero at the corner where the two lines meet.</p> <ul style="list-style-type: none"> <li>o The y-axis is like a vertical number line. You can write numbers in 1, 5, or any interval. We used intervals of 50 in the example above because we had a high maximum value of 400 for the Y axis. This axis represents the costs. It starts from 0 and ends with the maximum cost of the two costs we have i.e., current cost and projected reduced costs</li> <li>o The x-axis represents the categories of the costs we are interested in i.e., current cost and projected reduced costs. Draw rectangles representing the two cost types as shown above</li> <li>o The rectangles will be as high as the total number of each category. For example, in the graph above, the current costs are \$400. What are the projected reduced costs? Is it properly captured on the graph?</li> <li>o Color or shade each rectangle using a different color or shading pattern for each of the rectangles to ensure it can be seen clearly.</li> </ul> <p>You can do this for all the expense areas computed during this project.</p>
<p><b>10 minutes</b></p>	<p>You should present your ideas and suggestions to their parents/family members. Parents/family members provide feedback:</p> <ul style="list-style-type: none"> <li>- what they loved about the presentation,</li> <li>- what could have been improved,</li> <li>- and the parents' approval on the cost cutting suggestions</li> </ul> <p>Make the suggested edits revise your work based on the received from parents/family members.</p>
<p><b>20 minutes</b></p>	<p>Reflect on what you have learned from the project using some of the suggested questions:</p> <ul style="list-style-type: none"> <li>- How would consuming less affect the environment and other people?</li> <li>- What did you love about this project?</li> <li>- What have you enjoyed doing?</li> <li>- What skills have you gained/practiced?</li> <li>- What would you do differently from now on?</li> <li>- What strengths have you discovered in you? What weaknesses have you overcome by working on this project?</li> <li>- What advice would you give your parents?</li> </ul>

<b>Extension Activities</b>	<ul style="list-style-type: none"> <li>• Using pie charts and bar graphs in the final presentation of findings.</li> <li>• Additional content on environmental impact and social responsibility</li> </ul>
<b>Modifications for Simplification</b>	<ul style="list-style-type: none"> <li>• Simplified language and concepts</li> <li>• Fewer reflection questions</li> <li>• Manageable tasks</li> </ul>

## ASSESSMENT CRITERIA

- Coherence of the presentation with convincing conclusions
- Presentations are clear and doable whilst maintaining the quality of life
- Demonstrates understanding of positive impacts
- Showcases developed math, literacy and financial literacy skills
- Responds to and appreciates feedback from friends and family

## APPENDIX 1: DAY 2 WORKSHEET

### Food & Beverages

In each of the cells, there must be a detail of all ingredients and quantities. The more accurate the better it is to estimate the costs.

	Food				Drinks		Waste	Example
Name	b/fast	lunch	dinner	Others (snacks, desserts, fruits..)	Coffee, tea, hot beverages	Water and cold beverages	All left over food or drinks that	Breakfast

							get thrown away	
1								Ex: member 1 2 eggs, 2 slices of toast, 1 avocado, 10 olives, & 1 croissant (*waste: 2 olives and ½ croissant)
2								Members 2, 3 & 4 600 ml of milk, 300 g of cereal, 3 cookies.
3								(*waste: ½ cookie, 100 ml milk.)