

POPULATION CENSUS (LEVEL 2)

| | |
|----------------------------|--|
| Description | Learners will design their own census and gather and analyze data on the people within their community to understand their community better. |
| Leading Question | Can we conduct a census survey to learn more about our family and community? |
| Total Time Required | ~4.6 hours over 4 days |
| Supplies Required | Paper, Pen, Ruler. |
| Learning Outcomes | <ol style="list-style-type: none"> 1. Designing and using a survey tool to gather information 2. Solve problems with one-digit multiplication 3. Solve problems with four-digit subtraction 4. Data handling: analyzing survey data 5. Data handling: analyzing and creating graphical representation of data 6. Literacy: summarizing 7. Measurement and Data: Represent and interpret data 8. Statistics: ask-and-answer questions about totaling and comparing categorical data |
| Previous Learning | <ul style="list-style-type: none"> • Multiplication by one-digit numbers • Four-digit subtraction |

DAY 1

Today you will start creating your census survey.

| Suggested Duration | Activity and Description |
|---------------------------|--|
| 5 minutes | <ul style="list-style-type: none"> • Introduction: <ul style="list-style-type: none"> - Learners will create a census survey for their community. The purpose of a census is to find out the total number of people living in a place and understand them better by grouping them into similar categories such as age groups, gender, occupation etc. |

- Learners will create this and then survey the population of their immediate community including their own and their relatives' households and their close neighbors. They will then try to find out how many people fall under each category (such as gender, age group, occupation, education etc.). They will also find the number of school-going children in their community.
- Learners will then write a short essay summarizing their findings

20 minutes

- Create a census questionnaire with all the questions they want to ask participants. The learner will think about what they should ask and write the questions down.
- Suggested questions:
 1. What is your name?
 2. How many people are in your home?
 3. What is the age of each person in your home, including you?
 4. What is the gender of each person?
 5. What is the occupation of each person in your household?
 6. Are they currently:
 - a. in school
 - b. not in school
 - c. graduates!
 7. Can you and everyone in your house read and write?

30 minutes

- Learners will create categories for each of the responses.

Suggestions:

 8. Number of people in the home:
 - a. 1-4
 - b. 5-10
 - c. More than 10
 9. Age categories:
 - a. Under 18
 - b. 18-30
 - c. 30-60
 - d. Over 60
 10. Education:
 - a. Not enrolled in school or college and school / college age
 - b. Not completed school/college and not school/college age
 - c. Enrolled in school or college
 - d. Completed school
 11. Gender categories:
 - a. Male
 - b. Female
 12. Can you and everyone in your house read and write?
 - a. Yes

-
- b. No
 - *What categories can you add for occupation? Come up with a few options for occupation.*
 - 13. Number of people in the home:
 - a. 1-4
 - b. 5-10
 - c. More than 10
 - 14. Age categories:
 - a. Under 18
 - b. 18-30
 - c. 31-60
 - d. Over 60
 - 15. Education:
 - a. Not enrolled in school or college
 - b. Enrolled in school or college
 - c. Completed school or college
 - 16. Gender categories:
 - a. Male
 - b. Female
 - 17. Can you and everyone in your house read and write?
 - a. Yes
 - b. No
 - *What categories can you add for occupation? Come up with a few options for occupation.*

Note: if you add more questions, make sure to create categories for them.

The final questionnaire should look like the following:

- What is your name?
 - How many people are in your home?
 - 1-4
 - 5-10
 - More than 10
 - What is the age of each person in your home, including you?
 - Under 18
 - 18-30
 - 31-60
 - Over 60
 - What is the gender of each person, including you?
 - Male
 - Female
-

-
- What is the highest level of education of everyone in your house?
 - Not enrolled in school or college
 - Enrolled in school or college
 - Completed school or college
 - Can you and everyone in your house read and write?
 - Yes
 - No (write the number of household members who are unable to read and write)
 - What is the occupation of each person?
 - *<insert occupation categories>*
- Create answer sheets following the template below for each person you interview:
 - Record the responses of the person you are interviewing and **everyone in their house** on separate answer sheets. For example, if Hassan’s household has 4 family members, you will only interview Hassan, but you will record his answers to all the questions for each member of his family **on 4 different answer sheets**.
 - Group the answer sheets that belong to members of the same household together and write household 1, household 2, etc at top of the page.

10 minutes

Critique and revision:

- Learners present all the day’s work (the questions, the answer categories and the questionnaire developed) to their class, parents or family members for feedback and suggestions for improvement. The class, parents or family members provide feedback using the following format:
- Praise: What did you like about the learner’s work done?
- Question: do you have any questions or clarifications about the work?
- Suggestions: In what areas does the learner need to improve their work?

- Learners make the edits and suggestions (if any) to their work to make it better.

DAY 2

Today, you will interview your family and relatives and/or community members.

Suggested Duration

Activity and Description

1-2 hours

- Think about how you can collect the information from the different people within your family/community.
- Suggestions on how you can conduct the interviews:
 - In person with social distancing
 - Phone/video call or SMS for relatives or friends who stay far away
 - Guessing or asking family members if they know the answer for those they cannot reach to conduct the face-to-face interviews
- Go ahead and interview all the people in your family and/or community. Relatives can be interviewed through text or calls. If you are interviewing in person, make sure you have a mask on and maintain social distancing norms by standing 6 feet from the person you are interviewing.
- When you are interviewing people, ask them the question, then check the option in the categories that reflect their response. For example, if they graduated high school and are not in college, circle or put a check mark ✓ next to the “completed school” option of question 6 of the questionnaire above on the answer sheet.

10 minutes

- **Reflection:** Learners are encouraged to continually reflect on the exercise as they conduct it and keep improving the methods used to conduct the interviews. Below are some suggestions of reflection questions they can use through this process:
 - How are the interviews going? How do you feel about the way you are collecting information? Can it be improved? If so, how?
 - Are there any new things that you are learning through this process?

- Note: Another option if you are unable to conduct the interviews in person or phone calls is to simply guess what the responses might be or ask your family members if they know your neighbors well. This should be used as a last resort if you are unable to reach people for an interview.

DAY 3


Today you will analyze the results of the family/community census.

Suggested Duration


40-60 minutes

Activity and Description

- First, create a table like the following and enter the details of all participants. The rows represent the names of the people surveyed and the columns represent the questions in the questionnaire. Add columns for all the questions you included in your questionnaire:

Row 

| Name | Age | Gender | No. of people in house | Education |
|--------|-----|--------|------------------------|-----------------------|
| Sarah | 30 | Female | 3 | Completed college |
| Ahmed | 11 | Male | | In school |
| Kareem | 62 | Male | | Completed high school |
| Sana | 16 | Female | 5 | In school |

Column 

- When you interview people living in the same house, enter the total number of people living in that house only one time. For example, in the

table above, 3 people - Sarah, Ahmed, and Kareem - live in the same house. 3 is entered in the column of no. of people in house only one time in the row of the.

**40-60
minutes**

- Analyze your results using the following questions as your guidance:
 - In total, how many people live in all of the households you surveyed? This is called the **number of observations**.
 - How many people have completed school?
 - How many male participants did you find?
 - How many people were employed (had jobs)?
 - Arrange the ages of all the people in your survey in descending order (biggest to smallest) and find the middle value.
 - What is the most common age group you found in your data?
 - Are there more males or females in your survey?
 - Which gender category has said that they completed school more than the other - males or females?
 - How many school-going children did you find? Are there children who should be in school (based on their age) but are not attending any school?

Numeracy extension:

- Imagine that everyone in your survey said that they have 7 people living in their home. What would the total number of people living in all the homes be? (**hint:** multiply 7 by the number of observations)
- Imagine that you survey your neighborhood and find out that 230 people out of all the 1000 people living there cannot read or write. What is the number of people who **can** read and write?

Compile and write the responses from the analysis performed on a sheet of paper.

Share the responses with your class, parents or family members. Parents or family members or your teacher will check if you have been able to perform the analysis accurately and provide feedback on any areas that need improvement where necessary.

Day 4

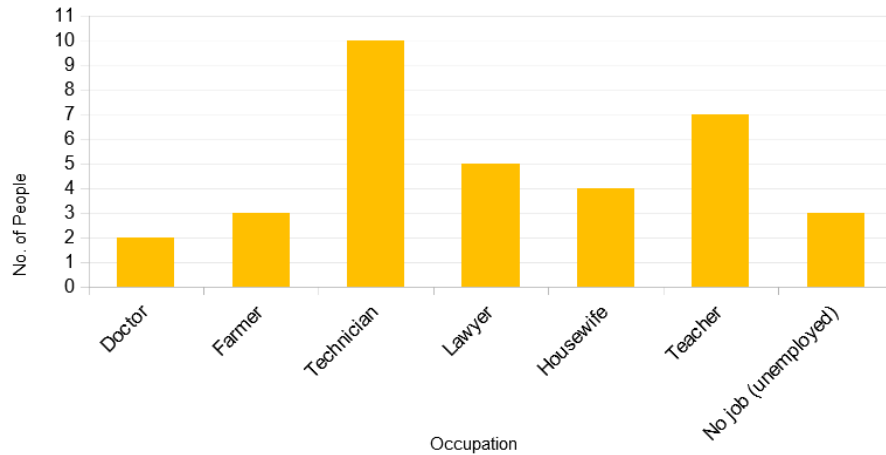
Today you will look at the results of your survey and share it with your family.

Suggested Duration

Activity and Description

15 minutes

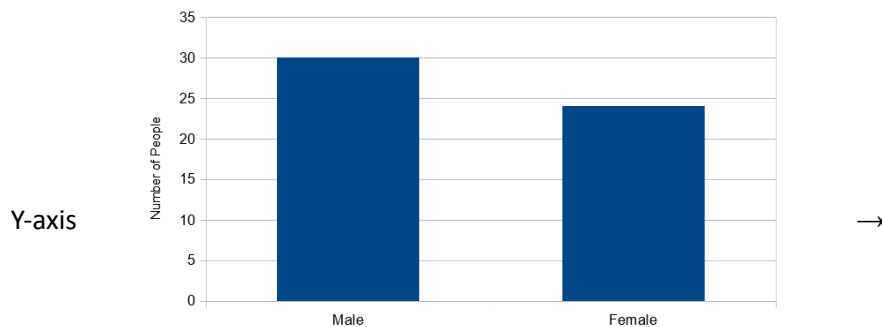
- Interpret the results of this fictional survey of a big family represented in the graph below and answer the following questions:



- How many farmers live in this house?
- Are there more lawyers than teachers?
- How many people in total live in this house?
- How many people living in this house are employed (have jobs)?
- What is the most frequent (or common) job? This is the job with the highest number of people.
- List the jobs in ascending order of how many people have them (smallest to biggest).

30 minutes

- **Optional challenge:** Learners challenge themselves to represent some of the information from the survey in bar graphs. First, select one category you want to represent. Suggestions: age, number of females vs males, education levels etc. Example:



X-axis ↑

- Steps:
 - Draw a vertical line on the left side of a piece of paper. Next, draw a 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 the horizontal line. These lines should intersect at the bottom left corner of the page.
 - The y-axis is like a vertical number line. You can write numbers in increments of 1, 5, or any interval. If you don't have many observations, you can write numbers from 0-10 with one-digit intervals e.g., 0, 1, 2, 3, 4 etc. as was done in the previous (yellow) graph above. In this (blue) graph, numbers are written from 0-35 in 5-digit intervals (0, 5, 10, 15... etc.). This axis represents the number of people surveyed. It starts from 0 and ends with the total number of observations.
 - The x-axis represents the categories of your questionnaire's questions. Draw rectangles representing the categories of age, education, occupation etc. as shown above.
 - The rectangles will be as high as the total number of each category. For example, in the graph above, there are 30 male participants.
 - Color or shade each rectangle using a different color or shading pattern.
 - Can you find out the number of female participants in the chart above?

30 minutes

- Learners will create a brief report about the main things they observed to summarize the census study they conducted and include the graph they made. Suggestions for what to include in the report:

| | |
|-------------------|---|
| | <ul style="list-style-type: none"> - Total number of people in your survey - Number of males vs females - Number of school-age and school-going children - Number of people who can read and write - Number of unemployed adults - Most frequently mentioned occupation - Most frequently mentioned highest level of education - Any other data they have collected |
| 10 minutes | <ul style="list-style-type: none"> ● Quiz family members on some questions to test how well they know their family! Learners will then share the results with their family by reading their report out loud and/or showcasing the poster they designed. |
| 15 minutes | <p>Overall Project Reflection:</p> <p>The learner will now think about all the exercises they have done all week and take note of any TWO of the following:</p> <ul style="list-style-type: none"> ● What is the most important lesson you have learnt through this project? ● What did you find challenging, puzzling, or difficult to understand? ● What question would you most like to discuss? ● What is something that you found interesting? |

ASSESSMENT CRITERIA

- Creation of questionnaire containing questions and response categories where applicable
- Interviewing and collecting data for at least 10 people either in person or virtually
- Correctly analyzing results and answering questions listed on day 3 tasks
- Correct graphical representation of at least one data point using bar graph
- - Creation of report with insight consisting of a few sentences on key information gained from census survey and/or poster to address challenge faced by surveyed participants

ADDITIONAL ENRICHMENT ACTIVITIES

- Learners can add more questions to the survey and come up with the appropriate response categories
- After completing the census, learners can try to identify one issue facing the community. For example, do the results reveal that there are a lot of out-of-school children? Do you find that many adults do not have a job? Learners can then design a poster to help address these issues

MODIFICATIONS FOR SIMPLIFICATION

- Reduce the number of questions or categories for the learners
- Learners can conduct the survey in their own homes with a smaller sample
- Learners can reduce the amount of analysis and questions they answer at the end