Third / Fourth Class ~ Lesson 3

Theme
Census ~ Make your Mark!

Objectives
That the child will be enabled to:
- understand and describe the Classroom Census process
- select data to be represented in graphical format
- represent the data collected in graphical format
- discuss the similarities and differences between graph types and identify the most suitable
- interpret data represented on graphs
- analyse the data and discuss how it might be used

Methodologies
- ✓ Problem-Solving
- ✓ Collaborative Learning
- ✓ Using the Environment
- ✓ Active Learning
- ✓ Skills through Content
- ✓ Talk and Discussion

Mathematical Skills
- ✓ Applying and Problem-Solving
- ✓ Communicating and Expressing
- ✓ Integrating and Connecting
- ✓ Reasoning
- ✓ Implementing
- ✓ Understanding and Recalling

Tasks
- Talk and discussion – revision of ideas and concepts from Lessons One and Two.
- Whole class activity – exploring different graphical representation of the same data
- Individual Work – representing data on a graph
- Pair Work – data analysis
- Plenary – reflecting on and evaluating the classroom census process; discussing how the data collected might be used in decision-making

You will need
- Resource 3.1 'Healthy or Unhealthy' Template
- Resource 3.2 'How healthy do you think you are?' Block Graph Template
- Resource 3.3 'How healthy do you think you are?' Bar Chart Template
- Resource 3.4 'How healthy do you think you are?' Bar Line Graph Template
- Resource 3.5 Data Analysis
- Resource 3.6 – 3.8 Travel to School– Graph Templates
- Resource 3.9 Travel to School – Data Analysis

Key Messages
- A census can be carried out at different levels – national level, classroom level…
- The data that is collected can be represented in different ways – tabular, diagrammatic and graphical format.
- Different graphs can be used to represent different types of information.
- Graphs and diagrams can be used to compare sets and provide information in an efficient way.
- It is important to analyse the data and to plan for the future

Integration and Linkage:
English: Oral language: Talk and discussion, asking questions, answering questions, reasoning, describing, explaining, comparing…
Maths: Data representation and interpretation; counting, finding totals, difference…
Language Development: *Census, official count, government, collect, question, information, form, show/represent, record, graph chart, table, diagram, Carroll diagram, block graph, bar chart, data, statistics, plan, future, check, count, important, decisions.*

Assessment
The children will
- describe the steps in the Classroom Census Process
- discuss the data/information that has been collected
- understand, create and use the Carroll Diagram, block graph and bar chart
- discuss similarities, differences and uses of each graphical representation
- interpret graphical representations and analyse data
- make suggestions on how data could be used

Teacher Observation Tips
Record in a notebook any significant events you notice such as a child having difficulty asking and answering key questions, describing the process, creating or interpreting graphs and diagrams.
Note also children who may need to be challenged with the extension suggestions provided.

Extension
- Choose further data from the Census form to be represented.
- Represent data in different graphical formats
- Analyse and interpret data
- Examine some of the data collected by the Central Statistics Office

Home/School Links
Children discuss process with their parents/guardians. Choose data to be represented and a suitable graph/ diagram
Visit www.cso.ie and examine some of the information collected by the Central Statistics Office

Teacher's Notes – Lesson 3

Introduction

Talk and Discussion

Revision of key messages from Lessons 1 and 2 – What do we remember?

- Use talk and discussion at whole class level to revise the key concepts covered in previous lessons:
  - ✓ What a census is and why it is held
  - ✓ How the census is conducted by the Central Statistics Office
  - ✓ The importance of asking key questions – Who? What? Where? When? Why? How?
  - ✓ How data is collected
  - ✓ How information is used when it has been collected.

- Discuss how the classroom census was conducted. Use the drawings children have made or class photographs of each step in the process and add captions to show the steps in the process.

1. The classroom census form was designed.
2. The census forms were delivered to each child in the classroom.
3. On the day of the census, all the children in the classroom read the questions on the census form and wrote their answers on the form.
4. The census forms were collected from each child.
5. The census forms were checked the answers tallied in a central 'office'.

<u>The following steps will be explored in this lesson:</u>

6. The information is represented on graphs or displayed in diagrammatic or tabular format.
7. These graphs are discussed and findings interpreted.
8. The information can be used to make class/school decisions

Whole Class Activity

- Explain to the children that it is now time to represent the information that has been collected and tallied from the classroom census forms in some way.

- Take one question from the Classroom Census Form e.g. How healthy do you think you are?

- Discuss the importance of considering the answer to each question on the census or any other form before simply ticking a box. In this case, it is necessary for people to think about their own health and lifestyles before responding. In a brainstorming session, the children could suggest ways that make a person healthy/unhealthy [Resource 3.1]

- Explain to the children that there were four possible responses to this question on the Classroom Census form i.e.
  Very healthy ☐ Healthy ☐ Not very healthy ☐ Very unhealthy ☐

- Ask the children how they might show (represent) this information. Suggest the use of concrete materials to represent this data e.g. towers of cubes, chains of learning links … Encourage the children to think about how they might differentiate between different pieces of information (colour-coding).

- Explore the different ways of representing the information e.g. block graph, bar chart … firstly using concrete materials and later on paper.

- Model / demonstrate to the children how to create each graph. This can be an interactive activity at whole-class level with children helping to create each graph on a white/magnetic board e.g.

Diagram A:

Diagram B:

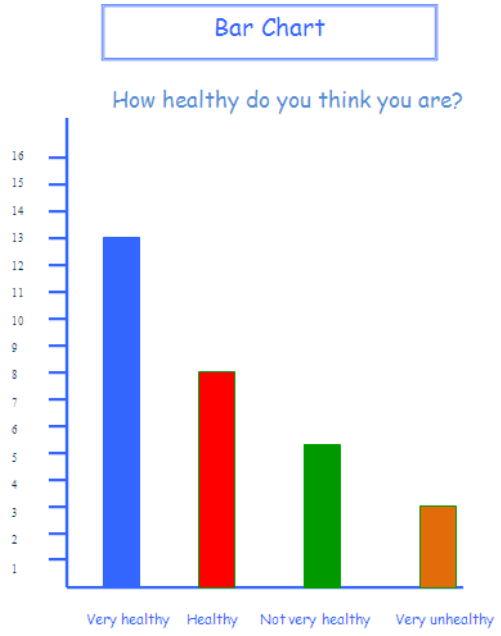
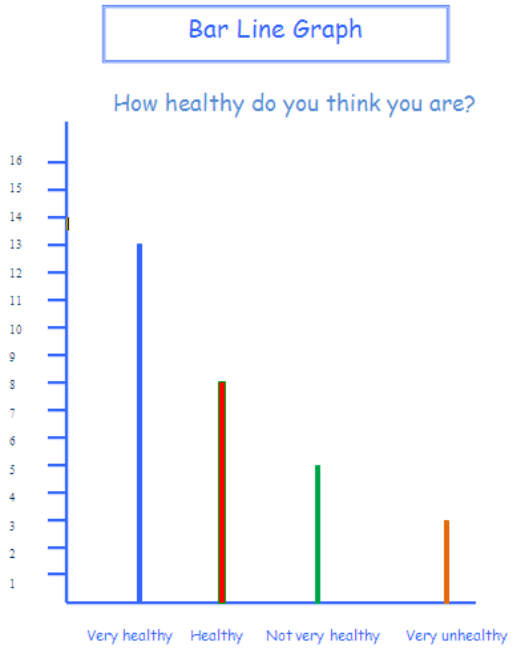


Diagram C:



- Discuss the different types of graphs and representations with the children. Ask guiding questions to help children to evaluate which type of graph might be best to use to represent two sets of data e.g.
    - ✓ How is the Block Graph different to the Bar Graph?
    - ✓ How is the Block Graph different to the Bar Line Graph?
    - ✓ Do any of the graphs look the same (similar)? How?
    - ✓ Which graph is the easier to read? Why?
    - ✓ Which graph is the easiest to create? Why?
    - ✓ How can you tell how many are in the set without counting? Show the class.
    - ✓ Which do you find easier to read – the block graph or bar chart? Why?

- In groups, children can create graphs using the templates provided [Resource 3.2, 3.3, 3.4]

- Once the graphs have been created, it is important to teach children how to use the graphs to analyse the data and to answer questions and use the information provided in a practical way. Use the following list of questions or provide the children with a worksheet to discuss in their groups [Resource 3.5]

Data Analysis

Use the graphs to find this information:

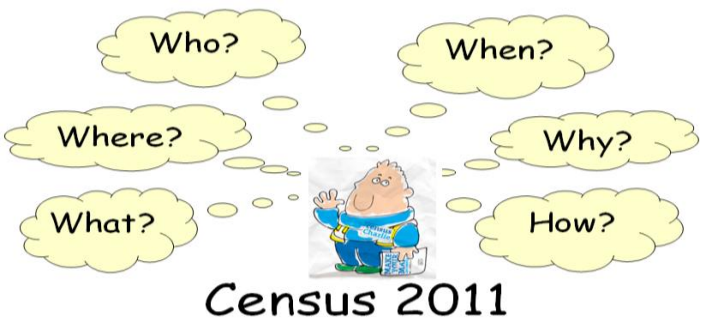
1. How many sets are shown on this graph / diagram?
2. Which set is the biggest?
3. Which set is the smallest?
4. Order the sets from smallest to biggest.
5. How many people think they are very healthy?
6. Do many people think they are very unhealthy? Why do you think this is so?
7. Are there more males or females? How many more?
8. What is the difference between the largest set and the smallest set?
9. Are there more in the 'Not very healthy' set or in the 'Very unhealthy' set?
10. Do you think the graph would look the same if adults were answering the question? Why/why not

Plenary Session

In this session, the teacher and children work together and discuss elements of the lesson.

- Recall the steps in the Classroom Census process using:

Key Questions



- Outline the steps that were covered in this lesson i.e.

Step 5: Information collected is represented on graphs or displayed in diagrammatic or tabular format.

Step 6: People read these graphs or lists and discuss the findings.

- The children could then consider how this information could be used in the school to make decisions i.e.

Step 7: The information can be used for class/school discussions and for decisions-making e.g.

- How healthy do we think we are in this school?
- What steps can we take to make sure every child becomes healthier?
- What aspects of health can we learn more about?
- How can we make people more aware of their own health?

Extension work

- Take another question from the census form and create graphs to represent the results e.g.

  How do you travel to school?

  Car ☐ Walk ☐ Cycle ☐ Bus ☐ Other _____

  Some children may need to use the templates provided [Resources 3.6 – 3.8]

- The data collected for the 'Travel to School' question can then be analysed. [Resource 3.9]

Home/school links

- Discuss the steps in the Classroom Census process – explain how this census was conducted to your family [Key question chart or Investigation step cards could be used to help children sequence and retell]
- Choose another question from the Classroom Census form, use the data provided on the census tally form and create one of the graphs used to show the information.
- Visit www.cso.ie to look at the type of information that is gathered by the Central Statistics Office.

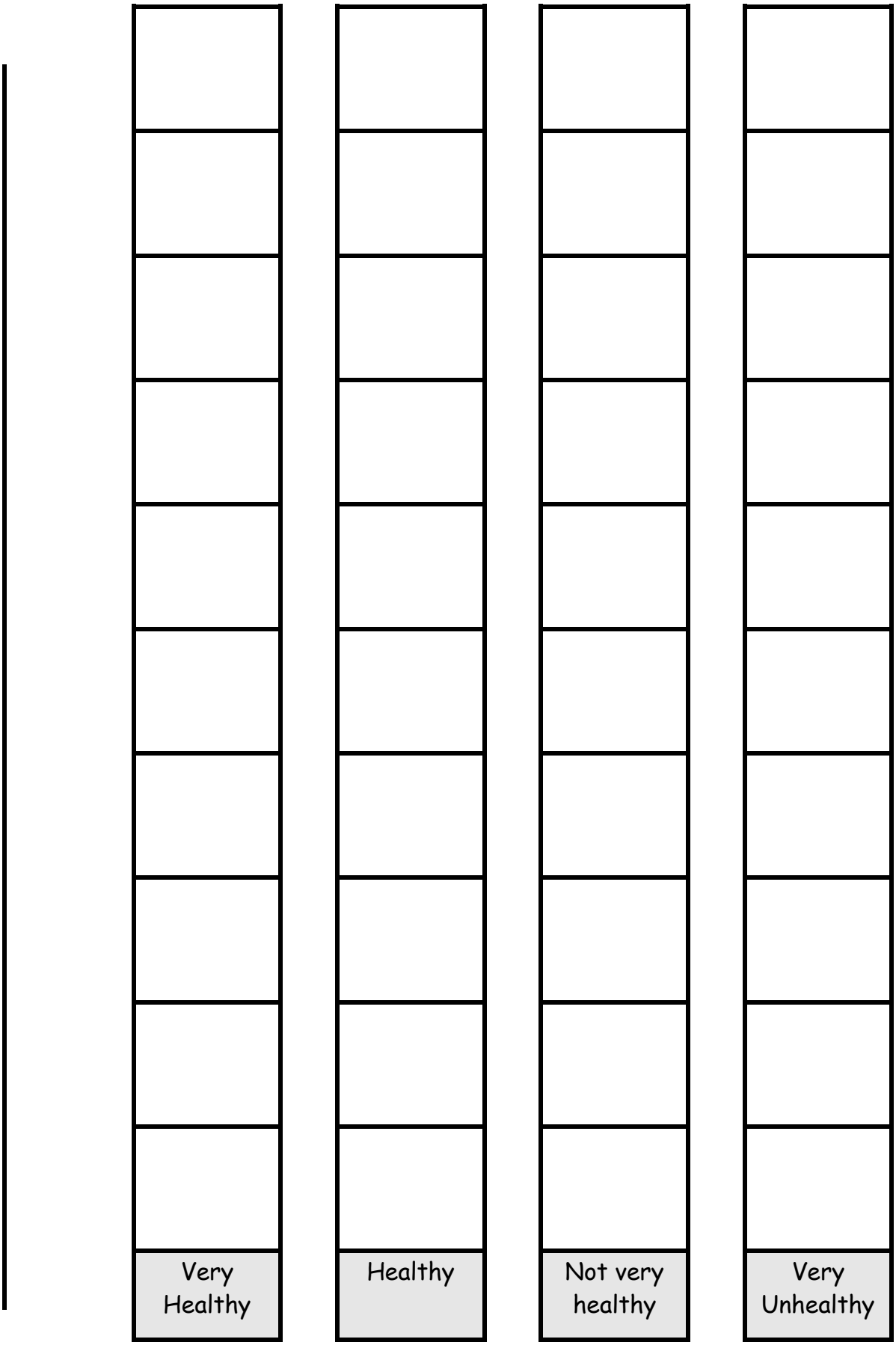
Healthy or Unhealthy ~ It's Up to You!

List ways that make a person:

Healthy	Unhealthy

Resource 3.2

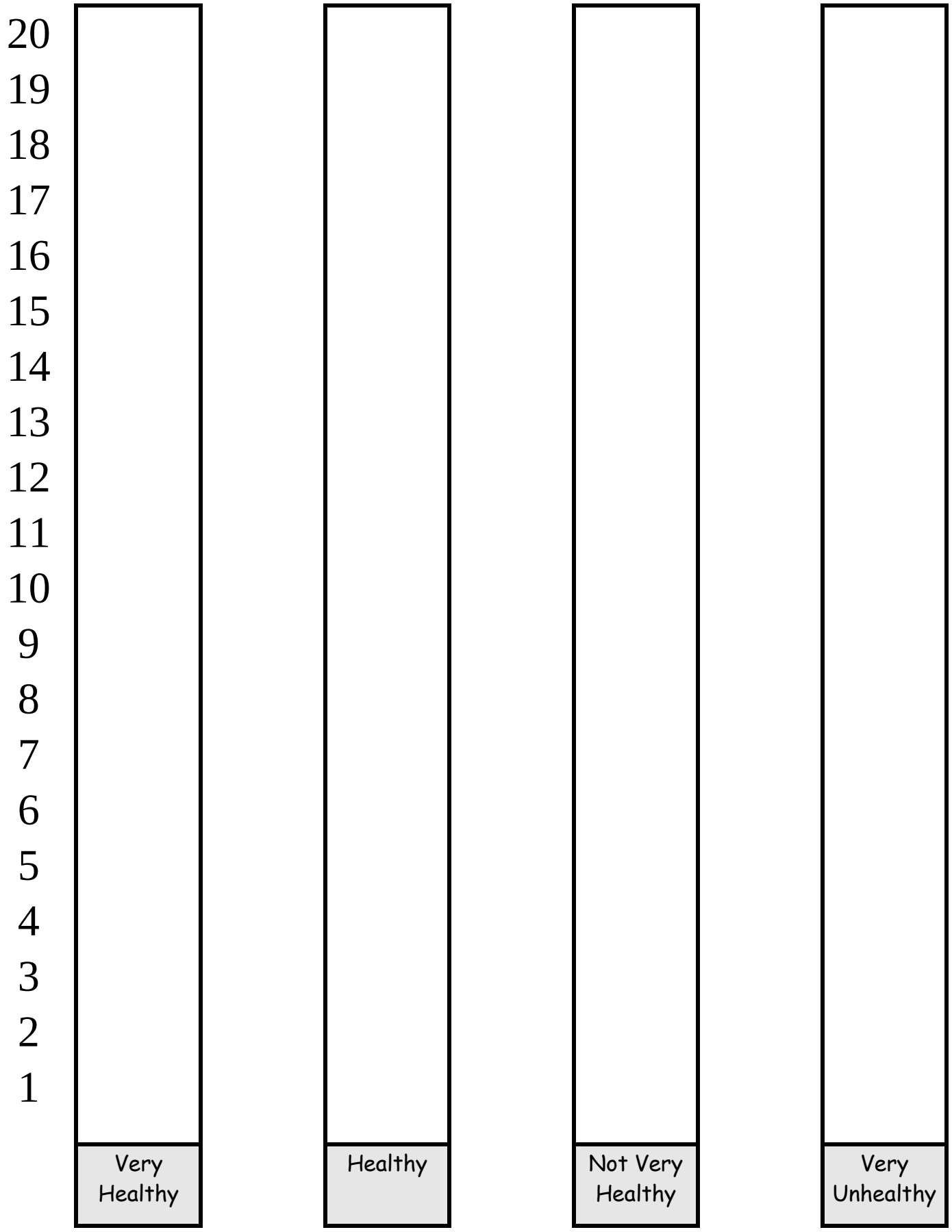
How healthy do you think you are?



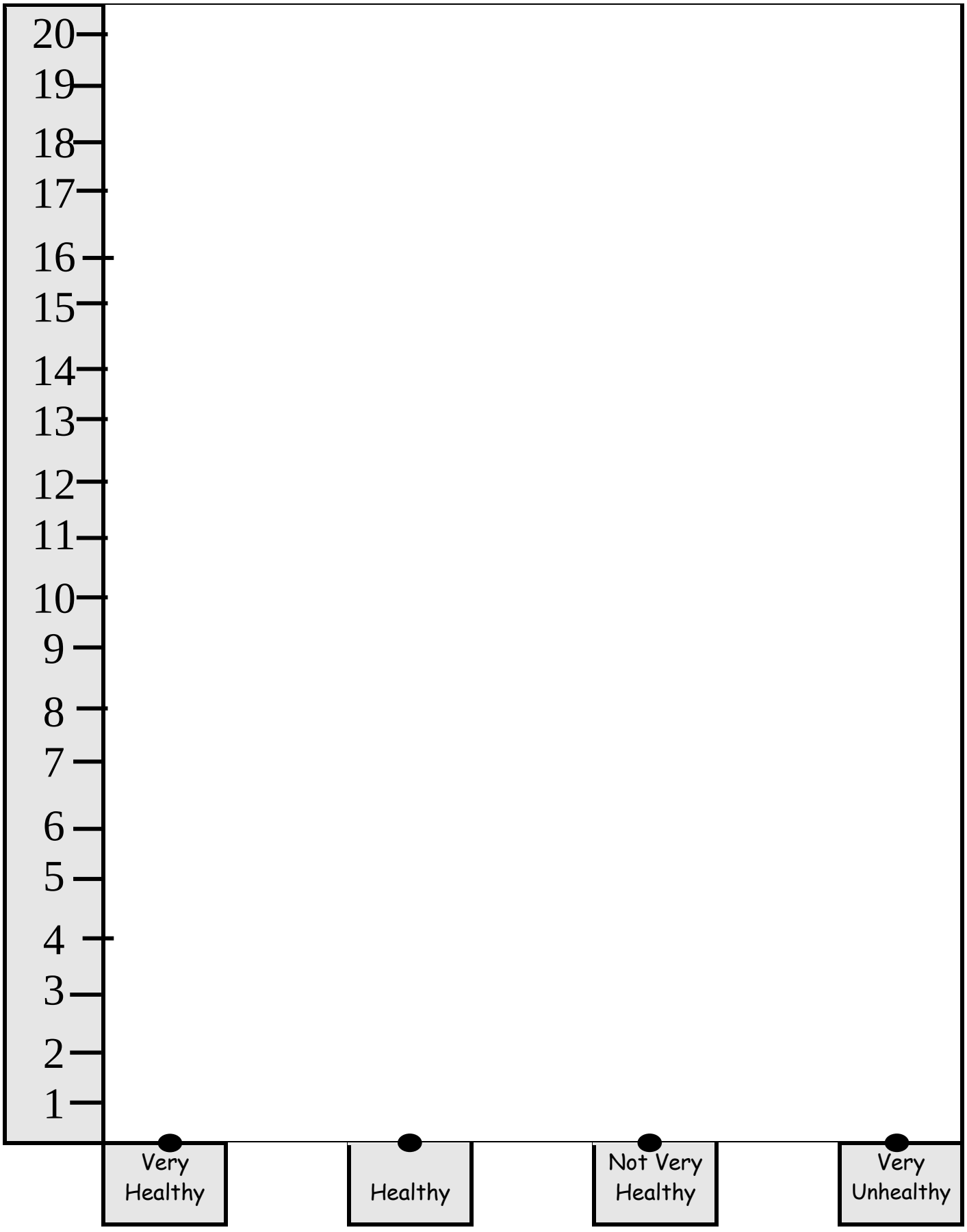
Resource 3.3

How healthy do you think you are?

Bar chart



How healthy do you think you are?
Bar Line Graph



How healthy do you think you are?
Data Analysis

Study the graph and answer the following questions:

- Which set is the biggest?
- Which set is the smallest?
- Let's order the sets from smallest to biggest.
- How many people think they are very healthy?
- Do many people think they are very unhealthy?

  Why do you think this is so?
- What is the difference between the largest set and the smallest set?
- Are there more in the 'Not very healthy' set or in the 'Very unhealthy' set?
- Do you think the graph would look the same if adults were answering the question? Why/why not?

List the ways in which a person might maintain very good health…

_____

_____

_____

_____

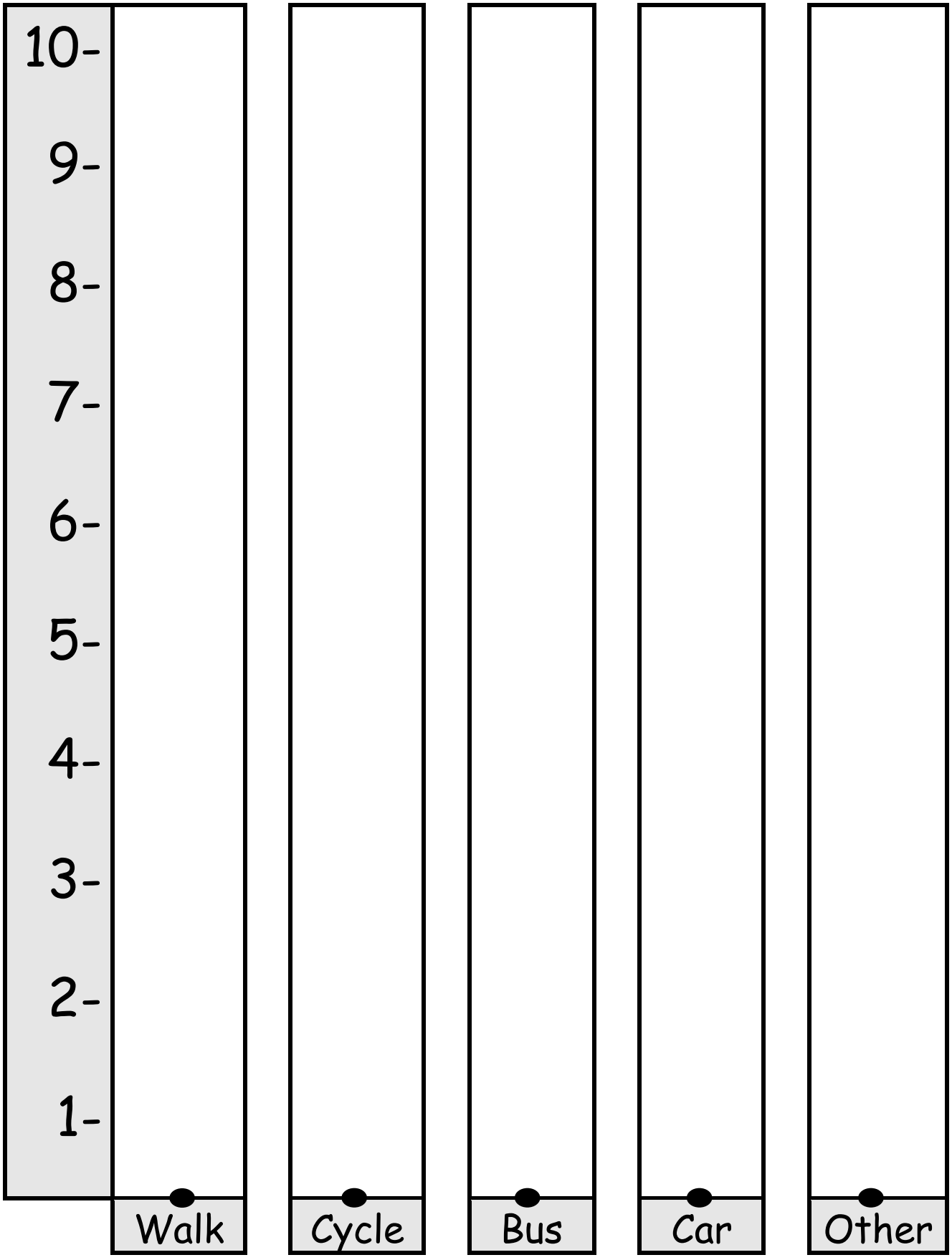
How we travel to school

Walk	Cycle	Bus	Car	Other

How we travel to school

	Walk	Cycle	Bus	Car	Other
10					
9					
8					
7					
6					
5					
4					
3					
2					
1					

How we travel to school



Resource 3.9

Data Analysis
Travel to School

Study the graph and answer the following questions:

- Which set is the biggest?
- Which set is the smallest?
- Let's order the sets from smallest to biggest.
- How many people walk to school?
- Do more people travel to school by bus or by car?

Why do you think this is so?

- What other ways do people travel to school?
- Do less people walk or cycle to school?
- How many people travel to school in a vehicle ?
- Let's order the sets from biggest to smallest.

Think of some questions <u>you</u> could ask…

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