



Theme

Census ~ Make your Mark!

Objectives

That the child will be enabled to:

- understand and describe the Classroom Census process
- represent the data collected in a Carroll Diagram, a block graph and a bar chart
- discuss the similarities and differences between each graph and identify the most suitable
- interpret the data represented on a graph
- analyse the data and discuss how it might be used
- select data to be represented in graphical format

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, Two and Three.
- 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 4.1 Carroll Diagram Template
- Resource 4.2 Block Graph Template
- Resource 4.3 Bar Chart Template
- Resource 4.4 'Pets We Own' Tally Sheet
- Resource 4.5 Top Ten Pets - Template
- Resource 4.6 Pets We Own – Block Graph Template
- Resource 4.7 Pets We Own – Bar Chart Template

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.
- The information gathered is used 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 4



Introduction

Talk and Discussion

Revision of key messages from Lessons 1, 2 and 3 - What do we remember?

- Use talk and discussion at whole class level to revise the key concepts covered in previous lessons:
 - ✓ How to carry out a simple investigation
 - ✓ The importance of asking a key questions – Who? What? Where? When? Why? How?
 - ✓ The role of counting in the investigation process [Resource 2.1]
 - ✓ The story of ‘Charlie and Census 2016’ [Resource 2.4 and 2.5]
- 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.
 2. 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.
 3. The census forms were collected from each child.
 4. The census forms were checked the answers tallied in a central ‘office’.

The following steps will be explored in this lesson:

5. The information is represented on graphs or displayed in diagrammatic or tabular format.
6. People read these graphs or lists and discuss the findings.
7. 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. Are you?
Male Female
- 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 the two pieces of information (colour-coding).
- Distribute cubes to the children giving a green cube to the girls and a blue cube to the boys.
- Explore the different ways of representing the information e.g. Carroll Diagram, 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:

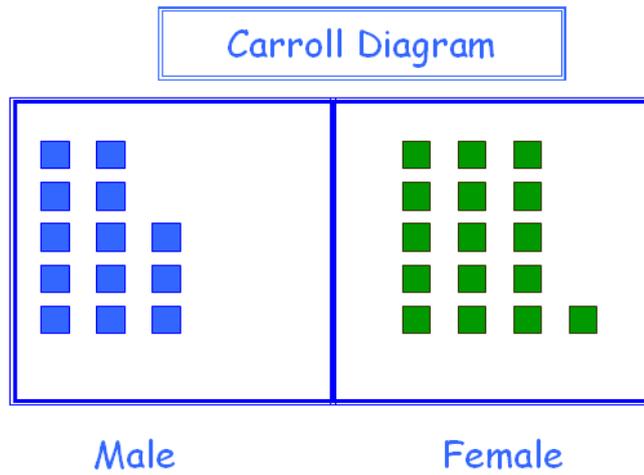


Diagram B:

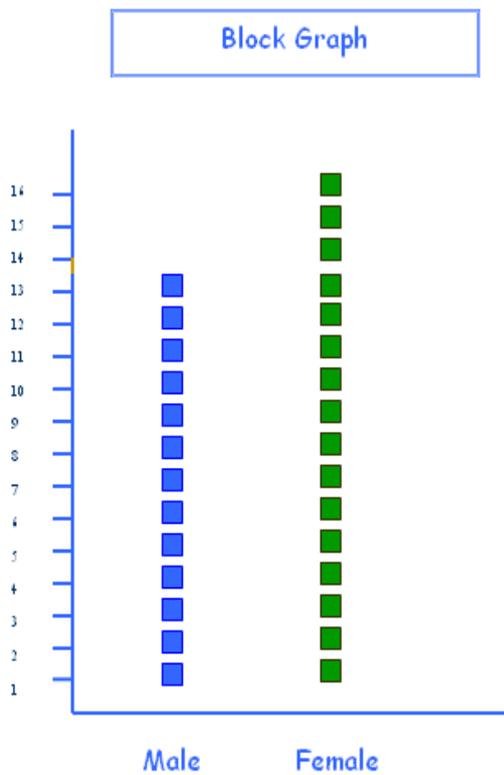
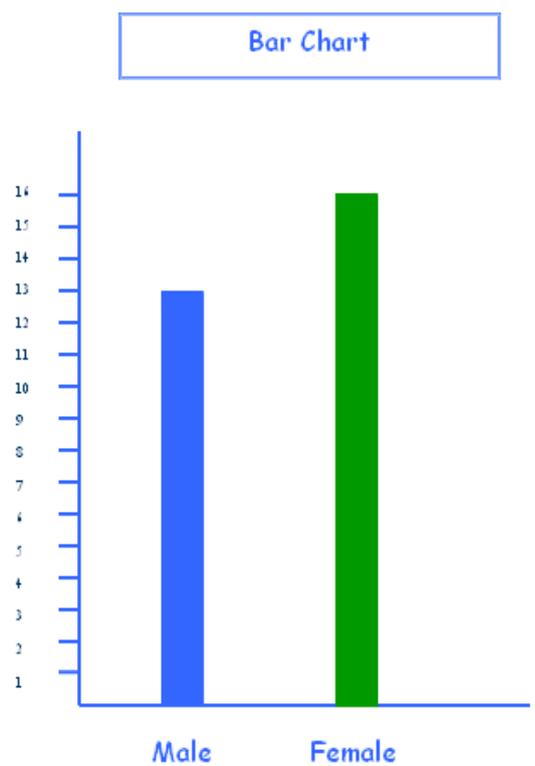


Diagram C:



- 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 Carroll diagram different to the Block Graph?
 - ✓ Do any of the graphs look the same (similar)? How?
 - ✓ Which graph is the easiest to read?
 - ✓ In which graph do you have to count each piece of information?
 - ✓ What graphs can you use to tell how many in a set without counting?
 - ✓ 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?
 - ✓ Which graph will you use to show two sets? Why?

- 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.

Data Analysis

Use the graphs to find this information:

1. How many sets are shown on this graph / diagram?
2. Are there males and females in this class? How do you know?
3. Are there any empty sets?
4. How many males in the class?
5. How many females in the class?
6. How many males and females in the class?
7. Are there more males or females? How many more?
8. What is the difference between the set of males and females?
9. List (orally) all the information you can read from the graph(s).



- Take a similar question from the classroom census form e.g.

Where do you live?

In the town

In the country

- The children can work in small groups and represent their findings in a Carroll Diagram, a block chart or bar graph [Resource 4.1, 4.2 and 4.3]
- Once the information has been represented, the graphs and diagrams can be displayed. The children can once again discuss the advantages and disadvantages of using each type of representation.
- The graphs/diagrams can again be analysed / interpreted. On this occasion, encourage the children to compose the questions for data analysis e.g.

Data Analysis

Use the graphs to find this information:

1. How many sets are shown on this graph / diagram?
2. Are there children who live in the town and children who live in the country? How do you know?
3. Are there any empty sets?
4. How many children live in the country?
5. How many children live in the town?
6. How many children altogether?
7. Are there more children who live in the town or in the country? How many more?
8. What is the difference between the set of children who live in the town and the set of children who live in the country
9. List (orally) all the information you can read from the graph(s).



Plenary Session

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

- Retell of the Classroom Census Process using:

Sample Key Questions



Census 2016

- Listing the key steps in the classroom census process and outlining the steps that were covered in this lesson i.e.

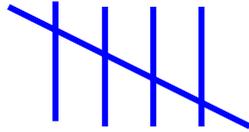
The following steps were explored in this lesson:

5. The information is represented on graphs or displayed in diagrammatic or tabular format.
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 to make class/school decisions e.g.
Are there enough activities provided for males and females?
What resources and games have we in the classroom to suit males / females?
Are there changing facilities for males / females?
We need to consider parking for those travelling to school from outside the town?
Do we need to provide a school-bus service for children living in the country?

Extension work

- Take another question from the census form and create a graph to represent the results e.g.
Do you own a pet? Yes No
Type of Pet _____
- Use the template provided [Resource 4.4] to make a list of the pets that children own (class/school). The children can be taught how to tally a set of five and to record this tally in the table e.g.



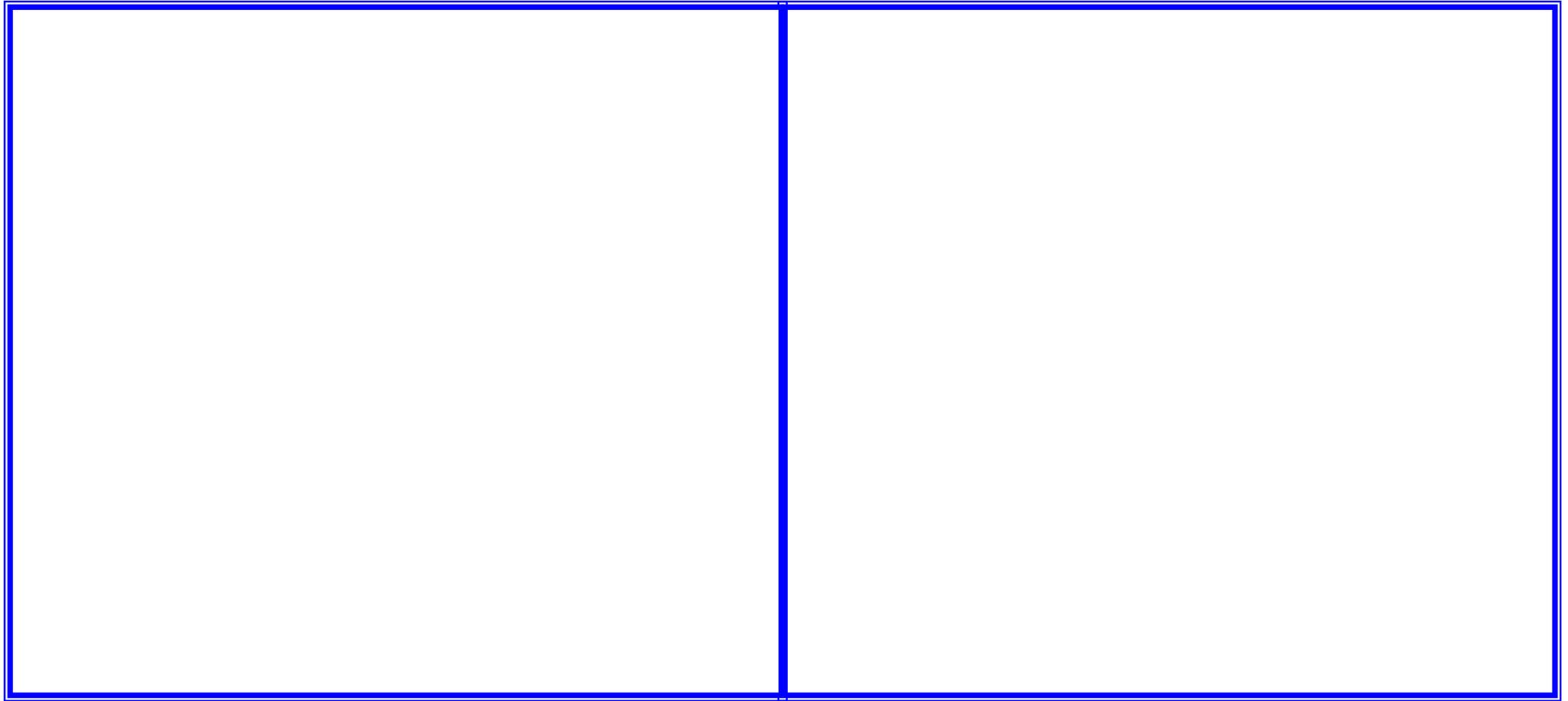
- The children can then total the number of each pet and list the top ten pets in the table provided [Resource 4.5]
- This data can then be represented in a block graph [Resource 4.6] or bar chart [Resource 4.7]

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.



Carroll Diagram - Where do you live?



In the Town

In the Country



Block Graph

Where do you Live?

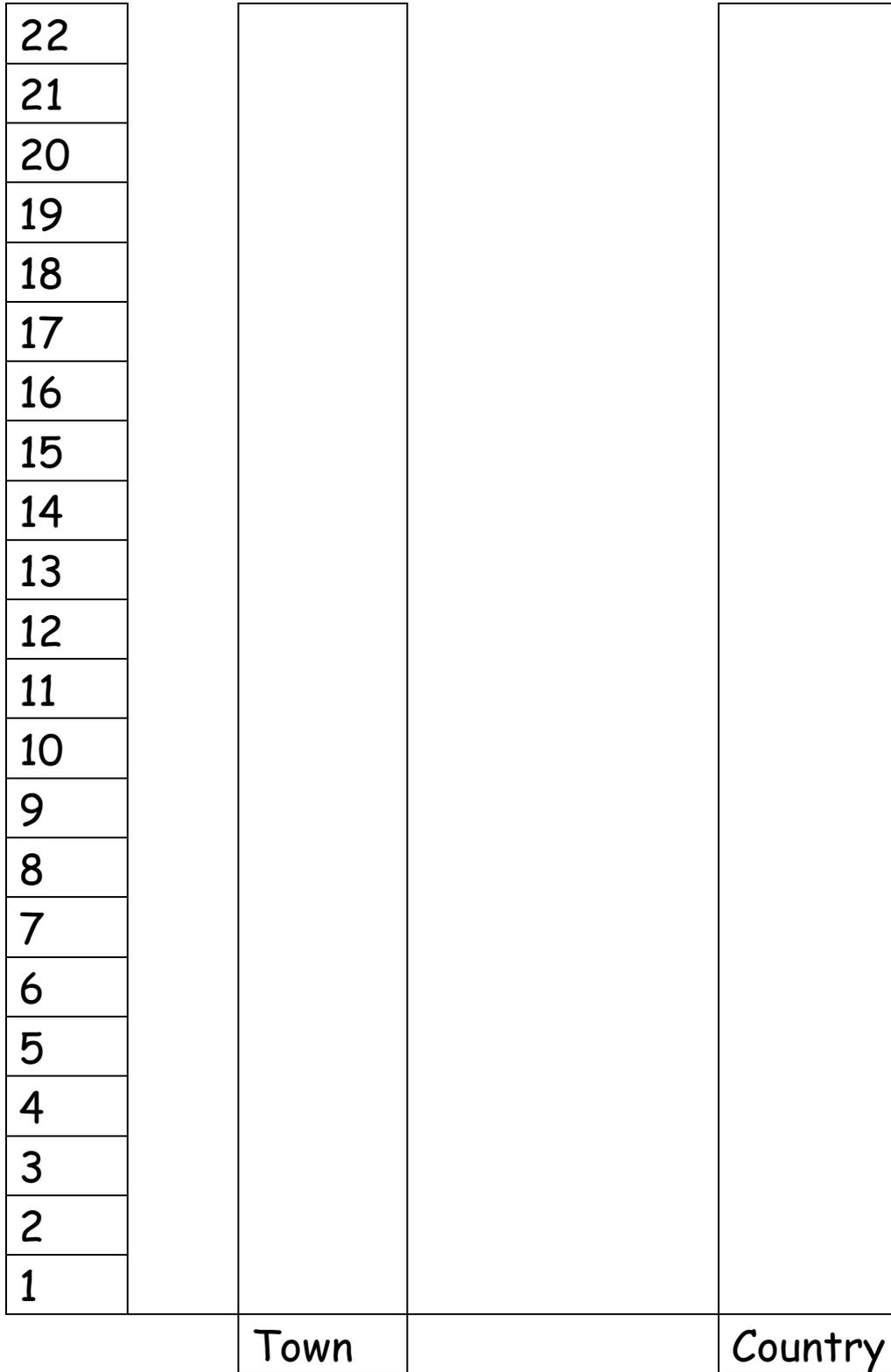


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	Town	Country



Bar Chart

Where do you Live?





Pets We Own



Top Ten Pets		Total
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		



Most Popular Pets

