Census 2006

First and Second Class

Lesson Four ~ Census 2006

Theme
CENSUS ~ What We Learned

Objectives
That the child will be enabled to:
- Further develop an awareness of the upcoming census on April 23rd 2006
- Engage in the data collection process at classroom level
- Represent and interpret classroom data using different types of graph
- Know how to use a tally sheet
- Make decisions in choosing appropriate types of graph for a particular purpose

Tasks
- Revision of the Key Messages of the previous lessons

  Activity 1: Compiling the data
  Activity 2: Creating a block graph
  Activity 3: Calendar work

Language
Incorporation of previously learned language into the real activity of the class census.
Collect, question, information, form, ask, Sunday, April, population, age, address, male, female, count, country
Revision of language of comparison: taller/shorter, more/less, most/least etc.
Statistics, data, tally, graph, Venn diagram, block graph, Carroll diagram

You will need
- Census Tally Sheet J 4.1
- Classroom Census Graph Templates
- J 4.2 a b c
- Birthday Chart J 4.3
- Data analysis – travel to school J 4.4
- April 2006 Calendar J 4.5
- Census Board Games ~ based on calendar
- J 4.6 a b
- Calendar Quiz J 4.7
- Census Puzzle ~ based on magic number 23 J 4.8

Key Messages
- A classroom census is a great source of information.
- A classroom census can be designed to provide facts and figures (statistics) to help planning within the school.
- Each step of the data collection process is important for a successful outcome.
- Data can be represented in different ways.

Assessment
- The children will demonstrate their increasing understanding of the census process through representation and interpretation of the data collected in the classroom census
- The children will correctly identify graphs as Venn diagrams, Carroll diagrams or block graphs
- The children will demonstrate their understanding of the use of tally sheets by using them in other situations such as counting numbers for milk, crayons, teams …
- The children will begin to make decisions about which type of graph to use for particular purposes

Teacher Observation Tips
Be aware of children who are finding the work very easy and try them out with more challenging tasks such as comparing two sets of data, predicting what type of result they expect, setting up a survey of their own for home…
Remember to have a quick revision of the flashcards used in previous lessons and a quiz relating to word meanings. Note can be taken of children who are still having difficulties with the spoken/ written language.

Integration and Linkage
Maths: Number – Sorting, Combining and Comparing sets, Counting / Data Representation and Interpretation
Algebra – Odd and even numbers
Measures: Time – Work with calendar
English: Writing genre ~ form filling

Home/School Links
The importance of calendars and marking in the date of the census at home. Explore things that are happening in the month of April, school Easter holidays, birthdays, the Census…

Teacher's Notes

Oral/Mental starter J 4.3

Use the calendar as a target number board. Use the calendar to explore concepts such as addition, subtraction and place value.

Talk and Discussion – What we learned

Revision of key messages from previous lessons – what do we remember?

- A classroom census is a source of information. A classroom census can be designed to provide facts and figures (statistics) to help planning within the school.
- A statistic is a piece of data (information) obtained from a study of a large amount of data.
- Data can be represented in different ways for example, Carroll Diagram and block graph.

Encourage the children to discuss how the classroom census was carried out and to outline each step of the data collection process.

Brainstorm

What might happen to the data now? How can we handle such a large amount of data – would we get mixed up? (use of computers in handling large amounts of data). What type of graph should we use? How will we know if we have represented all of the information accurately?

Activity 1 – Compiling the data (information) – the children as computers

- The forms can be given back to the children and they now become the computer compiling the data

- Children can either complete a classroom tally sheet in which the totals for each data set are entered or teacher can complete a large tally sheet for the class. This will involve counting sets of data based on the data provided by the children e.g. How many children have green eyes? How many birthdays in January? How many people walk to school? **J 4.1**

- In order to reinforce the usefulness of tallying the teacher should take opportunities to encourage their use for working out how many cartons of milk we need today, how many teams of five for PE …

- Each question can be dealt with separately and the overall data collected. The children can be the data sets each time by physically standing up when their category is called e.g.
  - Question 1 - Are you male or female (all males stand up and are counted, then all females). Data recorded on 'master' sheet on board or chart
  - Question 2 - In what month were you born? Have list of months laid out on blackboard and fill in as children stand up for their month. How many in January, February …
  - Question 3 - How old are you? Children can discuss what span of ages they would need to collect the data. Would we need to include 1, 2, 3, 4, 5? Would we need to go over 10?
  - Question 4 - What colour eyes do you have?

- Question 5 - What colour is your hair? Again explore what span of colours we have and what criteria we use to define colour (What is blond? What is brunette? Can people really have black hair? Does bleached hair count as blond?)
- Question 6 - Where do you live? See sample below
- Question 7 - How do you travel to school? Again call out the categories and let the children be the data sets and stand up when their category comes up. What do you do if you walk sometimes and get a lift when it rains?

This small census form will yield enough data to keep a class going for quite a long time and can be returned to either as extension work for more able children or for work to do when you are an early finisher. (Make a graph to show where people in our class live. Choose the best type of graph to show the information).

Sample lesson sequence for one data set

- Take one question from the Classroom Census Form e.g. Where do you live?

In the town ☐ In the country ☐

Again this will raise questions of where the town ends and the country begins and will show the need for accurate descriptors.

- Consider how we might show this information. Suggest the use of concrete materials to represent this data e.g. cubes, links … Ask the children how they can differentiate between the two pieces of information (colour)

- Distribute the cubes to the children giving a red cube to those who live in the town and a blue cube to those who live in the country.

- Talk about the ways in which we can represent the information using the cubes e.g. Venn diagram, Carroll diagram…

- Choose one method for demonstration purposes.

Activity 2 Creating a block graph J 4.2 a b c

- The children may suggest creating a block graph using the cubes.

- Construct a tower of red cubes to represent those who live in the country and a tower of blue cubes to represent those who live in the town. These towers should be displayed and clearly labelled on the mathematics table or at the magnetic board.

- The children can then examine the data sets and answer questions e.g. Which tower is taller? Which set has most? Do more people live in the town than in the country? By how many? Are fewer people living in the country or in the town? How many people live in town? How many more people live in the country? Which tower is shorter? Which group of people do the red cubes show? How many people altogether?

- Does this tell the true story about our class? What does it not tell us? (How many boys live in the country? How many girls? How could we find out? Which type of graph might tell us this?) Talk to the children about other ways in which the same information can be shown without using concrete materials e.g. symbols/drawings/name cards on Venn diagram or Carroll diagram (pictorial representation).

- Ask the children if we could show the data in any other way on a block graph (one sticker per person, colour in one square per person etc). Discuss what information we need to have on a block graph. Add in each element one by one. Why do we need a title for the graph? (we wouldn't know what it was about otherwise). Do we need labels for the columns, what should they say? Could we have different sized boxes? Why not?

- Create a class block-graph on a large chart. Each child can either colour in or paste on a square to the chart.

- Test your chart by bringing in a child from another class to 'read' the results. Can they read the story we are trying to tell?

Further activities with the data

- Consider how the rest of the data could be represented e.g. eye colour, hair colour, transport to school, birthday month … Block graph templates have been provided to allow for further discussion and data representation of these data sets i.e. eye colour, hair colour, transport to school, birthday month.

- Choose one or more of these graphs to complete with the class. These templates can be used over a number of weeks with the whole class or some templates could be used for early finishers or for those who need further help with this concept.

- An important aspect in the data collection process is data analysis when data sets are compared and discussed.

- Some sample questions have been provided in the Data Analysis sheet for the block graph on 'Travel to School'. These questions could be adapted for other data sets. Always encourage the children to create their own questions – what would they like to find out?

Activity 3 – Calendar work J 4.5 J 4.6 J 4.7

- Calendar Work – to highlight the Census date i.e. April 23rd 2006, a calendar has been provided with this lesson. This provides an opportunity to familiarise the children with the calendar as well as to develop an awareness of the up coming census.
- A Calendar Quiz has also been included with this lesson with suggested questions on the use of the April calendar.
- A fun way in which the calendar can be used is as a board game with dice and counters. The Census Board Game is included with this lesson (with two levels of difficulty).
- The Census Puzzle provided in the pack provides an enjoyable way to revise simple addition and subtraction facts while at the same time highlighting the upcoming Census date i.e. 23rd April 2006.

Plenary

Depending on which activity you did discuss:

A. Why we use computers to sort data?
B. Why are graphs easier to read than a written report? Do you know any other types of graph?
C. The importance of calendars in our lives

Home/School Links

Many homes will have a calendar showing important dates and reminders. Ask the children to look at a calendar at home and see what they might be doing the week of the census. Ask them to highlight the date 23rd April on their home calendar.

Classroom Census Tally

Let's Count

How many people in the class? .....

How many boys in the class? .....

How many girls in the class? .....

How many people were born in:

January	February	March	April	May	June
July	**August**	**September**	**October**	**November**	**December**

How many people were born in:

Town		Country	

How many people have:

Green eyes	Blue eyes	Brown eyes	Grey eyes	Other

How many people have:

Blond hair	Brown hair	Red hair	Black hair	Other

How many people travel to school by:

Walking	Cycling	Bus	Car	Other

J 4.2 a

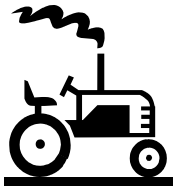
Eye Colour

Green	Blue	Brown	Grey	Other

Hair Colour

Blonde	Brown	Red	Black	Other

How we travel to school



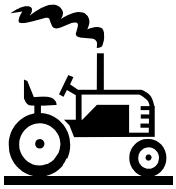
Walk	Cycle	Bus	Car	Other

Birthday Chart

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec

J 4.4

Data Analysis
Travel to School



Have a look at the block graph

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?
In 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…

April 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					Start	1
2 ★	3	4	5	6 ▲	7	8
9	Easter holidays begin 10	11	12	13	14	15 ★
Easter Sunday 16	17 ★	18	19 ▲	20	21	22
23	24	25	26	27	28	29 ▲
30	Finish					

Census Board Game

Game 1

Game: 2 players

You will need: Census game-board, one six-sided die, counters of two different colours

How to play:

1. Decide who will start by allowing each player to throw a die. The player with the highest number begins.
2. To start play, Player 1 rolls the die and moves that number of spaces e.g. roll a six – move six spaces.
3. If a player lands on a space with a star, this player takes another turn.
4. If a player lands on a space with a triangle, this player misses a turn.
5. The first player to reach the finish line or to land exactly on CENSUS DATE i.e. 23rd April is the winner.

Challenge:

Encourage children to invent their own rules for the Census Game.

Census Board Game

Game 2

Game: 2 players

You will need: Census game-board, one six-sided die, counters of two different colours

How to play:

1. Decide who will start by allowing each player to throw a die. The player with the highest number begins.
2. To start play, Player 1 rolls the die and moves that number of spaces e.g. roll a six – move six spaces.
3. Player 1 checks if the number in the space he/she has landed on is odd or even.
4. Player 1 rolls the die again. If the number in the space is odd and the player has rolled an odd number, he/she can move that number of spaces. If the number in the space is even and the player has rolled an even number, he/she can move that number of spaces. If the roll of the die and the number in the space do not match, the die is given to Player 2.
5. Player 2 takes a turn.
6. The first player to reach the finish line or to land exactly on CENSUS DATE i.e. 23rd April is the winner.

Calendar Quiz

- How many days in April?
- Is this number odd or even?
- On what day does April begin?
- On what day does April end?
- In what season is April?
- How many Sundays in April?
- How many full weeks in April?
- How many children in your class have birthdays in April?
- On what date is Easter Sunday?
- When will the Easter holidays begin?
- Census 2006 will be held on what date?
- On what day of the week will the Census be held?

- Can you find an odd number on the top row?
- Can you find an even number on the bottom row?
- Call a number with three tens.
- Are there any numbers with seven units?
- Is there any number that is double a number?
- Find two numbers with a difference of three?
- What is today's date?
- Census day is on 23rd April – use numbers on the calendar to make the number 23.
- Let's explore patterns on the calendar:

What pattern do you see in each row?
What pattern do you notice in each column?
Take a square of numbers e.g. 1, 2, 8, 9 ~ add the diagonals – what do you notice?

Census Puzzle

Read the number sentence in each box below.
Colour only the boxes with an answer of 23.

13+10	30-7	15+8	24+5	1+21+1	43-20	16+7
9+9	3+7	9+14	20-7	10+0	8+8	0+23
34-11	2+19+2	28-5	16+2	6+17	9+14	12+11
17+6	24-6	12-9	42+1	16-15	9-6	31-8
6+11+6	29-6	14+5+4	24+0	21+2	2+19+2	27-4

What do you notice about the colour pattern you have made?

The answer is 23 but what is the question? Make some new number sentences of your own: