

Teacher Resource and Guidelines

Guidelines for **FOUR** 35-40 minute classes.

General Introduction

Four lessons have been developed and aim to educate students about the Census in Ireland. Lesson one focuses mainly on understanding what a census is. Lesson two is a computer based class where students collect statistical data using the 2006 published statistics. Lesson three allows students to draw up graphs to illustrate the data collected and lesson four is the analysis and interpretation of the data collected. Two towns should be chosen from any of the 26 counties as the basis for these lessons. The potential to revisit or re-do these lessons (particularly lessons 2-4) once the CSO publishes its 2011 findings will no doubt make for some very interesting discussion.

This is not an absolute guide and teachers should adjust the material/methods to suit his/her own class group and facilities available. Three themes have been chosen here, there are many other themes worthy of study and should be explored.

The CSO website offers an abundant supply of raw data which can be utilised with ease once you familiarise yourself with the site. Not only is most of the data very recent it can also be used to monitor changes over time and space.

There are plenty of useful websites to help students and teachers with graphs and a simple search on how to construct various types of graphs would prove to be a worthwhile task.

All sources have been credited for throughout where appropriate. The main source for all census information and statistical data comes directly from www.cso.ie

The Central Statistics Office www.cso.ie and Census 2011 www.census.ie websites have been used extensively throughout the production of these lessons. The Census 2011 site (www.census.ie) has lots of information about the 2011 census - how it is undertaken and why, what it is used for, the form and the questions. The website has other lessons on the census for different subject areas and it is certainly worthwhile taking the time to explore.

These lessons have been developed as part of a Census 2011 initiative.

The Central Statistics Office wish to thank Derek Kirwan, a teacher in Wesley College Dublin, for producing this resource.

Lesson One – Introduction to the Census

Resources required: Student handout 6 Pages, Sample census form 2011 x 8 – group work. (data projector and internet – optional).

Structure of lesson

Part One: Introduction

Begin class and introduce the topic and what will be covered in this class.

- Inform your students that the first part of class will be reading about what a census is and how it takes place. Inform them at this stage (if the facilities are available in your school) that they will be able to use the computer room to examine the **results** of a census for themselves at a later stage (lesson 2).
- Next inform them that they will be filling out a sample census form for themselves in groups for the second part of the class.
- Some teachers might find it useful at this stage to write the homework up on the board which will be to complete all 15 questions about the census and map work (all of which will be part of the one 6 page photocopied handout).

Part Two: Handout (6 photocopied pages) (15 min)

Hand out the photocopied sheets and inform the students that they will have to listen carefully as they will have to fill out a question sheet for homework so advise them to take out a pen/pencil/highlighter to use as you or they read through the sheet. It will be necessary to explain some of the more complicated terms and words as you read through the document, so don't rush through it, allow questions and some discussion between yourself and the students so they can relate to it and engage in intelligent discussion.

Part Three: Sample Form (15 – 20 min) Group work

You might begin by saying that you will act as a Census Enumerator and will help students with any questions they may have when filling out the form.

The suggested method for this section is that you divide the class into 8 groups. Each group will represent a different household or family unit. They are to select the family composition themselves or you can select who can be the Mother/Father/Son/Daughter etc. You can include friends and grandparents in the groups if you wish (as this could be the case on census night). Vary the sizes of the groups to some degree but remember the aim of this section is simply for them to familiarise themselves with the form and questions asked.

Now in order to avoid any unnecessary complications it would be prudent to tell the students that everything they fill out on the form has to be fictitious and will have to be agreed upon in the group before filling in the form. So student A is the father aged 45 and works as a Garda whilst student C is the son who is 14 etc. It would be expected that if they agree as a group to be of a certain religion that the son for example will fill out the same section as the father. As there are individual sections to be filled in by each person they will all have work to do. Some suggestions for groups:

Group 1	Family of 4	(4)
Group 2	Family of 6	(6)
Group 3	Couple no children not married	(2)
Group 4	Single parent family, one mother, two children	(3)
Group 5	Family of 5 with friend staying over	(5)
Group 6	Married couple no children	(2)
Group 7	Household – 3 adults renting	(3)
Group 8	Household owner plus 2 friends	(3)

For a more controlled approach use written cards with family descriptions and allocate these to each group.

Part Four: Walk the class and enter into discussion with each group.

It would be worthwhile spending time discussing specific questions asked on the census form with each group rather than on a whole class basis as they work through the form. This will allow for more effective communication to take place between student and teacher.

Students don't have to complete all sections of the form. Simply allowing them time to work with the form and to examine the types of questions which are asked will be sufficient.

There is potential to process the information collected from this class but the value and time necessary to do this would be of little benefit when there are real/live statistics which can be used from the last census in 2006 on www.cso.ie/census

Sum up the lesson by telling them that you will review the information learnt in this class by checking and going through the answers from the homework in the next class. They will need atlases or access to maps from the internet to do map work activity.

If you have time show them using the data projector the [US Census Bureau \(www.census.gov\)](http://www.census.gov) site to help them with the mapwork question. On this site simply click the region/continent and over in the far right column of the next page is the date of the next census for a given country. Alternatively the [UN Statistics Division \(http://unstats.un.org\)](http://unstats.un.org) website has an interactive map which gives details of each country when you hover over the country on the map.

Note: Lesson two is not designed to follow directly after lesson one.

Lesson Two - Working with the data collected by the census

Lessons two-four should be taught consecutively.

* It is recommended that Population Pyramids be studied before starting this lesson.

Lesson two: Computer class – data collection

One **student booklet** may be photocopied for each student which includes a step by step guide to lesson two, record sheets, activity handout and graph paper. Teachers who do not wish to bundle these together or who do not feel it necessary can use this main booklet to photocopy individual handouts at his/her own discretion. Graph paper is included however it may not print well so perhaps source these sheets elsewhere.

Resources required:

Student booklet, use of a computer lab, data projector in computer lab with access to the internet.
(Includes Student Activity A from student activity handout)

Outline: The main aim of this lesson is to gather the data necessary to compare and contrast two Irish towns under three themes in order to show the types of information that are collected as part of the census.

In this class the use of a computer lab is essential. If one is not available the lessons will have to be reworked, perhaps hand out the booklets to students and they may access their own computers at home.

Introduction: Start the lesson by giving students an overview of the class. The main emphasis should be on the data which is collected by the census and for the students to understand the usefulness of having this information for the purposes of analysis, comparisons, change over time, trends, patterns government planning etc.

It is vitally important that the students listen carefully/follow each step carefully as one missed point can easily send them in the wrong direction.

Class: The step by step guide will guide teacher/students through what is required. You should be in a position to help students should any problems arise so familiarise yourself with the website.

The criteria for the selection of towns is up to each teacher but I recommend using one from the BMW region and one from South and Eastern region, as this comparison lends itself to good discussion in class.

Once students have transferred the necessary information onto their record sheets go through how the calculations for population pyramids may be worked out so they can create their own population pyramids using the blank handouts.

End of class and/or homework: Begin the calculations in class so any problems can be addressed before students attempt to complete the two population pyramids on their own. They should attempt to complete one pyramid for both of their chosen towns. There are population pyramid worksheets included; each box may represent 1% or any other suitable scale depending on the dataset. (Activity A from activity sheet).

Lesson Three - Drawing graphs

Resources required: Graph paper, student activity handout and record sheets. **(Includes Student Activities B and C from student activity handout)**

Introduction: Check homework and ensure that the population pyramids have been completed correctly.

Introduce two methods of representing the data collected from lesson two for nationality and occupation. It is recommended here that two pie charts be used to represent nationality and two bar charts be used to represent occupation.

Emphasise that this is done by computer by the CSO and how useful graphs are in reading trends or patterns from the statistics.

Teaching: Students will need to be taught or reminded how to construct these graphs so it is worth taking the time to go through these with students. 10 - 15 minutes should suffice. The examples and handout at the end of this document may help here when teaching pie charts. Take them slowly step by step through the process of drawing these graphs.

Class work and Activities:

Students may begin drawing their own graphs making use of the main booklet and examples already given.

Once the teaching of these graphs has been worked through go around the classroom and aid students in the task of making these graphs. It is recommended that they start with the pie chart as students may find this the more difficult of the two.

Homework - complete all graphs or re-do class graphs if they are not up to standard as they will need to be included on the final A3 poster.

Lesson Four - Group discussion and report writing

Resources required: Student work – graphs, A3 paper, graph paper if necessary, and main booklet
(Student Activity D from student activity handout)

This lesson is centred on reading, analysing and summarising the information from the graphs.

Introduction: Clearly outline that by the end of the lesson students should have a very good understanding of the population composition in terms of age and sex, nationality and occupational status of their chosen towns.

Individual activity: Instruct each student to spend 10 minutes to go through their own graphs looking for similarities or differences between the two towns under each of the themes. Tell them to find three points on each graph that they could discuss and to write these down.

Walk the classroom and help them see any differences and/or similarities.

Group work: Once this is done ask students to peer assess – allow them get into groups of three and ask them to swap their charts. This should be done in silence to allow each individual time to look at other graphs (not their own) in detail. Allow about five minutes for this. Next instruct them to discuss the information with each other and to make suggestions to help one another. This should take another five minutes.

Individual work: With the remainder of the class instruct the students that they have time to write up the similarities and differences. Hand out A3 paper so they can stick their graphs onto the A3 page and add the writing underneath each graph. Writing is the priority here more so than sticking the graphs onto the posters. Positioning and presentation should be considered before they put pen to the A3 paper. It is important at this point to stress the concluding paragraph or section which will tie their study altogether. (See Activity D from the student activity sheet)

These posters may be completed for homework and handed in for the next class.

These should be examined by the teacher, commented on and/or graded and hung up on the wall in the classroom.

If time is not an issue presentations may be a worthwhile activity.

How to Make a Pie Chart

An effective pie chart is easy to read and tells a story at a glance. To make one, you'll need your basic data set with numbers. For this illustration, the example data set will include 200 UK Citizens, 500 Irish citizens and 100 Other. As you compose your pie chart, you can get creative with colours and patterns. An effective pie chart should be eye-catching as well as informative, and the colours should make it easy to pick up the data.

Things you'll need:

- Compass
- Protractor
- Calculator

1. Draw a circle by using a compass. Make sure the circle is large enough for you to divide into enough slices to accommodate all of your information. Mark the centre of the circle.
2. Add your numbers to get a denominator. In this case it will be 800. Pie charts are based on fractions. So 200 people from the UK must be put into a fraction in this case it will look like $200/800$.
3. Divide each of the numbers in your data set by the denominator to get the fractions in which the circle will be divided. $200 \div 800 = 0.25$
4. Multiply the decimals by 360 (the number of degrees in a circle) to know how many degrees of the circle each piece will be (UK Citizens = 90°). Round the degrees to the same decimal place, and add them all up to make sure they equal 360.
5. Use a protractor to measure the size of each angle and draw the radii on either side of the slice of the pie. Think about how you want to organize the pieces. Determine where you want the largest piece to be and how you want to orient the slices in relation to one another. Colour each "slice" to differentiate one from another.

