Data Handling

Lesson Plans

Noemi Navas Arranz

Escola Bufalà

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University of Aberdeen

UNIT: DATA HANDLING				
Lessons: 1, 2 and 3 - A survey			**Level: 6**	
Aims: To gather information about the classmates			**Timing: 3 lessons**	
Subject skills				
Mathematical: Can use questionnaires and surveys to produce and interpret data as well as to broaden knowledge on quantitative aspects. Can put into practice surveys and data handling processes to gather their own data.				
Transferable skills				
Linguistic and audio-visual: can interact with other people, can give opinion and develop argument and can form questions to gather information. **Information handling and digital competence**: can design a questionnaire and chart to gather information using different supports including ICT tools and can transform information into knowledge in order to organize the data. **Learning to learn**: can process new knowledge and skills as well as make use of guidance (language frames, teachers, peers), can apply strategic thinking and cooperation and self-evaluation skills. **Autonomy, initiative and decision taking**: can develop and assess individual and collective activities with creativity, confidence, responsibility and critical thinking.				
Teaching Objectives and Learning Outcomes				
Teaching Objectives (What I plan to teach)	- introduce data organization. - guide pupils to organize fair groups. - give the tools to form questions and questionnaires. - enable the pupils to conduct a survey.			
Learning Outcomes (Pupils will be able to)	**Content**	**Cognition**	**Communication**	**Culture**
	- identify, understand and deal with:	- organize themselves to form groups by following some rules.	**LANGUAGE OF LEARNING** - form questions to gather data:	- appreciate other customs or ways of doing things.

	• rules. • functions of different roles. • data organization. • questionnaires. • good and bad habits: healthy diet, eco issues, media, hygiene & housework and leisure time & exercise	- have a role. - discuss and choose a topic. - form questions. - prepare a questionnaire. - design a tool to gather data. - conduct a survey. - gather data.	*How many times/hours a day/week/month do you...?* *How many ... have you got (at home)?* - answer the questions. *I ... X times/hours a day/week.* *I have got X ... at home* - conduct a survey. **LANGUAGE FOR LEARNING** - organize groups: *We need one more person in our group.* - choose a topic: *I like ...* *I prefer ...* - discuss and agree: *I think that ...* *I agree with you.* **LANGUAGE THROUGH LEARNING** - choose a topic. - form groups.	- respect others. - listen to others and appreciate their opinions.

Tasks and activities	**Materials and resources**
- Introduction: watching a video. - Forming groups. - The roles. - Choosing a topic. - Forming questions. - Preparing the questionnaire.	• Smartboard or projector and white screen • Topics_presentation ppt – SM • 'Discussion and agreement' language frame – SM p.19-20 • Role cards – SM p.2-3

- The survey. - Gathering the information together. - Self-assessment.	• Number cards – SM p.4 • 'Forming questions' language frame – SM p.21-24 • Pens and paper • 5 computers or laptops and printer (if possible, if not paper, pens, pencils and rulers) • Sample questionnaire chart – SM p.5 • Survey interactions ppt – SM • 'Self-assessment: A survey' grid – SM p.13
Assessment Criteria (How pupils...)	**Evaluation tools**
- organize themselves into groups. - assume the functions of a specific role. - form questions and answers about good and bad habits. - answer questions. - prepare a questionnaire. - conduct a survey. - gather and organize data. - use English for communication. - participate in the tasks.	- teacher observations - self-assessment

UNIT: DATA HANDLING	
Lessons: 0, 4, 5 and 6 – Charts	**Level: 6**
Aims: To learn about different types of charts	**Timing: 3 lessons**
Subject skills	
Mathematical: Can use charts and graphs in order to produce and interpret data. Can interpret and put into practice data representation processes to represent their own data.	
Transferable skills	
Linguistic and audio-visual: can interact with other people, can give opinion and develop argument and can interpret and understand the situations s/he will encounter in everyday contexts and beyond. **Artistic and cultural**: can design charts and graphs to represent data making use of personal creativity and can understand and value different ways of doing this. **Information handling and digital competence**: can create charts and graphs to represent data using different supports including ICT tools, can organize information using charts and graphs, can relate information between natural and graphic languages and can transform information into knowledge activating thinking skills in order to represent data. **Learning to learn**: can process new knowledge and skills as well as make use of guidance (language frames, teachers, peers) and can apply strategic thinking and cooperation and self-evaluation skills. **Autonomy, initiative and decision taking**: can develop and assess individual and collective activities with creativity, confidence, responsibility and critical thinking.	
Personal, social and civic skills	
Knowledge of and interaction with the natural world: can interpret data to take reflective action in order to improve one's own and others' diet and can argue and draw conclusions on the consequences of different eating habits and show a predisposition to lead a healthy lifestyle.	
Teaching Objectives and Learning Outcomes	
Teaching Objectives (What I	- enable pupils to identify and use different types of charts. - provide the pupils with opportunities to read line graphs and pie charts - encourage knowledge transfer to create line graphs.

plan to teach)	- encourage knowledge transfer to create pie charts using percentages.			
Learning Outcomes (Pupils will be able to)	**Content**	**Cognition**	**Communication**	**Culture**
	- identify, understand and deal with: • different types of charts. • line graphs. • pie charts and percentages. • data representation by means of charts and graphs. • classification of real data.	- read different types of charts, including line graphs and pie charts (percentages). - create different types of charts. - create line graphs with their own data. - create pie charts using percentages with their own data. - choose the most appropriate chart for a specific type of data.	**LANGUAGE OF LEARNING** - name different types of charts: *frequency tables, bar charts, pictograms, line graphs, pie charts* - deal with data: *compare, height, frequency, result, trend, represent, key, sectors, percentages* - create a line graph: *dots, days, how many* *On day 1, five pupils had fruit.* - create a pie chart: *On day 6, 40% of the pupils had a cake (sweet snack).* **LANGUAGE FOR LEARNING** - compare: *the same, higher, lower, the most, the least, the highest, the lowest* - discuss and agree: *I think that ...* *I agree with you.* - answer questions *Fewer pupils had fruit on day 7.*	- respect others. - listen to others and appreciate their answers and opinions. - appreciate the usefulness of charts. - notice and respect differences in eating habits. - value the importance of a healthy diet.

			Eight pupils had a sandwich on day 3. *The percentage of pupils who had a sandwich is 30%.* **LANGUAGE THROUGH LEARNING** - discuss and agree answers - create a chart or line graph	

Tasks and activities	**Materials and resources**
- The roles. - Different types of charts. - Checking charts comprehension. - Homework. - Line graphs. - Pie charts and percentages. - My snacks pie chart. - Creating charts for the questions. - Self-assessment. - Extra activities for fast-finishers or for doing at home.	• 'Snacks chart' – SM p.1 • Role cards – SM p.2-3 • Number cards – SM p.4 • Smartboard or projector and white screen • Whiteboards and markers or scrap paper and pens • 'Discussion and agreement' language frame – SM p.19-20 • 'Comparing' language frame – SM p.25 • 'Charts' worksheet – SW p.1-3 • 'Charts homework' worksheet – SW p.4-5 • 5 computers or laptops and printer (if possible, if not paper, pens, pencils and rulers) • 'My snacks pie chart' worksheet – SW p.6 • Chart with all the data each group

	has gathered • Pens, pencils and coloured pencils. • 'Self-assessment: Charts' grid – SM p.14
Assessment Criteria (How pupils...)	**Evaluation tools**
- assume the functions of a specific role. - read charts, specially line graphs and pie charts - create charts, specially line graphs and pie charts using percentages. - use English for communication. - participate in the tasks.	- teacher observations - self-assessment - charts created by the pupils - homework worksheet

UNIT: DATA HANDLING	
Lessons: 7, 8 and 9 - Frequency and average	**Level: 6**
Aims: To calculate frequency and average	**Timing: 3 lessons**
Subject skills	
Mathematical: Can calculate absolute and relative frequencies and average to interpret information. Can grasp the concepts of range, median, mode and mean.	
Transferable skills	
Linguistic and audio-visual: can interact with other people and approach other ways of doing things, can give opinion and develop argument and can interpret and understand the situations s/he will encounter in everyday contexts and beyond. **Information handling and digital competence**: can access and communicate information using different supports including ICT tools and can transform information into knowledge activating thinking skills in order to calculate absolute and relative frequencies and average. **Learning to learn**: can process new knowledge and skills as well as make use of guidance (language frames, teachers, peers), can make an effort to solve complex tasks such as calculating the mean, can recognise coherent answers and can apply strategic thinking and cooperation and self-evaluation skills. **Autonomy, initiative and decision taking**: can compare and value data and results and can develop and assess individual and collective activities with creativity, confidence, responsibility and critical thinking.	
Personal, social and civic skills	
Social and civic: can appreciate and respect others, different points of view and different habits.	
Teaching Objectives and Learning Outcomes	
Teaching Objectives (What I plan to teach)	- enable pupils to calculate and interpret absolute and relative frequencies. - enable pupils to calculate and interpret range, median, mode and mean.

Learning Outcomes (Pupils will be able to)	**Content**	**Cognition**	**Communication**	**Culture**
	- identify, understand and deal with: • absolute and relative frequency. • range. • median. • mode. • mean.	- calculate absolute and relative frequencies from a given set of data and from their own data. - interpret absolute and relative frequencies. - calculate range, median, mode and mean from a given set of data and from their own data. - interpret range, median, mode and mean.	**LANGUAGE OF LEARNING** - calculate absolute and relative frequencies: *absolute frequency, relative frequency, piece of data, tally marks, fraction, numerator, denominator, round up or down, hundredth, add up* *Count the number of times.* *This is ...* *Write a ...* *Divide ... by ...* *Round ... up or down to the nearest ...* *Write the absolute frequency as the numerator and the total number of events as the denominator.* - explain processes: *first of all, next, now, then* - calculate average: *range, median, mode, mean, lowest, highest, calculate, order, middle, add on, most/least repeated* *How many ...?* *What is the ...?* *Divide ... by ...*	- appreciate other customs, habits or ways of doing things. - respect others. - listen to others and appreciate their opinions. - use different symbols for decimals depending on the language (comma ‘,’ for Catalan or Spanish and point ‘.’ for English)

			LANGUAGE FOR LEARNING - do the activities and tasks *above, below, even number, identify* *Use a ...* *What happens if ...?* *Look at ...* *Answer these questions.* *What is the ...?* *Complete this definition.* - give reasons: *Why ...?* *Because ...* - discuss and agree: *I think that ...* *I agree with you.* - answer questions *The ... is ...* **LANGUAGE THROUGH LEARNING** - discuss and agree answers - calculate frequencies and average - work in groups	

Tasks and activities	**Materials and resources**
- The roles. - Absolute and relative frequency. - Let's calculate the relative frequency. - Homework.	• Role cards – SM p.2-3 • Number cards – SM p.4 • Smartboard or projector and white screen

- Finding out about range and median. - Finding out about mode and mean. - Self-assessment. - Homework. - Extra activities for fast-finishers or for doing at home.	• Absolute and relative frequency ppt – SM • 'Frequency' worksheet – SW p.7-8 • 'Frequency to order' worksheet – SM p.6 • Whiteboards and markers or scrap paper and pens • 'Discussion and agreement' language frame – SM p.19-20 • Calculators • Chart with all the data each group has gathered • 'Chart to record frequency and average' – SW p.9 • 'Frequency Homework' worksheet – SW p.10 • 'Frequency for fast-finishers' worksheets – SM p.7-8 • Mean, Median, Mode and Range ppt – SM • 'Average' worksheet – SW p.13-20 • 'Median to order' worksheet – SM p.9 • 'Average Homework' worksheet – SW p.21 • 'Self-assessment: Frequency and average' grid – SM p.15 • 'Average for fast-finishers' worksheets – SM p.10-12

Assessment Criteria (How pupils...)	**Evaluation tools**
- assume the functions of a specific role - calculate absolute and relative frequency - calculate range, median, mode and mean - use English for communication. - participate in the tasks.	- teacher observations - self-assessment - worksheets - homework

UNIT: DATA HANDLING	
Lessons: 10, 11 and 12 - Our class	**Level: 6**
Aims: To gather information about the classmates	**Timing: 3 lessons**
Subject skills	
Mathematical: Can use questionnaires and surveys to produce and interpret data as well as to broaden knowledge on quantitative aspects. Can put into practice surveys and data handling processes to gather their own data.	
Transferable skills	
Linguistic and audio-visual: can interact with other people and approach other habits and ways of doing things, can relate different data, give opinion and develop argument and can interpret and understand the situations s/he will encounter in everyday contexts and beyond. **Artistic and cultural**: can design a poster making use of their own creativity and can understand and value different habits and ways of doing things. **Information handling and digital competence**: can access and communicate information using different supports including ICT tools and can transform information into knowledge activating thinking skills in order to analyse data, draw conclusions and write a report. **Learning to learn**: can process new knowledge and skills as well as make use of guidance (language frames, teachers, peers) and can apply strategic thinking and cooperation and peer- and self-evaluation skills. **Autonomy, initiative and decision taking**: can analyse data and draw conclusions developing and assessing individual and collective activities with creativity, confidence, responsibility and critical thinking.	
Personal, social and civic skills	
Knowledge of and interaction with the natural world: can interpret data to predict consequences, give advice and take reflective action in order to improve habits for one's own and for the others and can argue and draw conclusions on the consequences of different habits and show a predisposition to lead a good habits lifestyle. **Social and civic**: can appreciate and respect others, different points of view and different habits in a plural society.	

<table>
<tr><th colspan="5">Teaching Objectives and Learning Outcomes</th></tr>
<tr><td>Teaching Objectives (What I plan to teach)</td><td colspan="4">- offer the pupils the opportunity to analyse data and draw conclusions
- give the tools to write a report pointing out advantages and disadvantages and giving advice
- encourage pupils to present conclusions to the classmates</td></tr>
<tr><td rowspan="2">Learning Outcomes (Pupils will be able to)</td><td>Content</td><td>Cognition</td><td>Communication</td><td>Culture</td></tr>
<tr><td>- identify, understand and deal with:
• report from gathered data.
• presentation.
• data analysis.
• good and bad habits.
• advantages and disadvantages.
• giving advice.</td><td>- analyse the gathered data.
- write a report about the analysed data.
- look for advantages and disadvantages.
- give advice for good habits.
- present conclusions to an audience.</td><td>LANGUAGE OF LEARNING
- analyse data
More pupils ... than ...
- draw conclusions from the analysis of data
Most of the pupils ...
- point out the advantages and disadvantages of having good and bad habits
If you ...
... is good for ...
... is bad for ...
- give advice for good habits
In order to ... you should ...
- present conclusions to an audience
The data show that ...
LANGUAGE FOR LEARNING
- give reasons:
Why ...?
Because ...</td><td>- appreciate other customs, habits or ways of doing things.
- appreciate the importance of having good habits.
- respect others.
- listen to others and appreciate their opinions.</td></tr>
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			- discuss and agree: *I think that ...* *I agree with you.* *We can ...* **LANGUAGE THROUGH LEARNING** - discuss and agree - work in groups	

Tasks and activities	**Materials and resources**
- The roles. - Preparing presentations. - Presentations. - Peer-, group- and self-assessment. - Homework. - Extra activities for fast-finishers or for doing at home.	• Role cards – SM p.2-3 • Number cards – SM p.4 • 5 computers or laptops and printer • 'Discussion and agreement' language frame – SM p.19-20 • 'Reporting' language frame – SM p.26 • 'Giving advice' language frame – SM p.27 • Kraft paper, glue, coloured pencils, markers • Smartboard or projector and white screen • 'Peer-assessment' grid: criteria for assessing the presentations – SM p.17 • 'Group-assessment' grid – SM p.18 • 'Self-assessment: Our class' grid – SM p.16

Assessment Criteria (How pupils...)	**Evaluation tools**
- assume the functions of a specific role - analyse data and draw conclusions. - write a report. - point out advantages and disadvantages. - give advice. - present conclusions to the classmates. - use English for communication. - participate in the tasks.	- teacher observations - presentations - peer-assessment - group-assessment - self-assessment