

# UNIT 3 SESSION 1: HOW CAN WE MEASURE WELL-BEING?

Age range: 8 - 12 years

<p><b>Outline</b> Learners will explore some ways in which well-being is quantitatively measured. They will ask and answer questions about a set of tabulated data for the UK and the four Young Lives countries: Ethiopia, India, Peru and Viet Nam. Learners will then explore the use of infographics to represent percentages.</p>		
<p><b>Learning objectives</b></p> <ul style="list-style-type: none"> <li>To know some ways in which well-being is quantitatively measured.</li> <li>To understand that per cent (%) relates to the 'number of parts per hundred'.</li> <li>To round decimals to 1 decimal place and to the nearest whole number.</li> <li>To interpret data and represent it in different ways.</li> </ul>	<p><b>Learning outcomes</b></p> <ul style="list-style-type: none"> <li>Learners will interpret a set of data measuring well-being.</li> <li>Learners will ask and answer questions about a set of data.</li> <li>Learners will round decimals to 1 decimal place and to the nearest whole number.</li> <li>Learners will use infographics to represent percentage data.</li> </ul>	
<p><b>Key questions</b></p> <ul style="list-style-type: none"> <li>How can we measure well-being?</li> <li>What does the data tell us?</li> <li>What is the best way of representing the data?</li> </ul>	<p><b>Resources</b></p> <ul style="list-style-type: none"> <li>Unit 3 Slideshow (Sessions 1 – 3): Slides 2 – 18</li> <li>Resource sheets:             <ol style="list-style-type: none"> <li>Measuring well-being</li> <li>How many people?</li> </ol> </li> <li>Activity sheets:             <ol style="list-style-type: none"> <li>Which is which?</li> <li>Show me the data</li> </ol> </li> </ul>	
<p><b>Curriculum links</b></p>		
<p><b>England</b> <i>Pupils should be taught to:</i> <b>Mathematics</b> <b>Number – fractions (including decimals and percentages)</b></p> <ul style="list-style-type: none"> <li>Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> </ul> <p><b>Statistics</b></p> <ul style="list-style-type: none"> <li>Interpret and construct bar charts, pictograms, tables, pie charts and line graphs and use these to solve problems.</li> <li>Complete, read and interpret information in tables, including timetables.</li> </ul>	<p><b>Wales</b> <b>Mathematics</b> <b>Number</b></p> <ul style="list-style-type: none"> <li>Round answers to calculations to an appropriate degree of accuracy.</li> <li>Use fractions and percentages to estimate, describe and compare proportions of a whole.</li> </ul> <p><b>Handling Data</b></p> <ul style="list-style-type: none"> <li>Use and present data in a variety of ways including tables, pictograms, charts, bar charts, line graphs, diagrams, text and ICT.</li> <li>Collect, represent, analyse and interpret data.</li> </ul>	<p><b>Scotland</b> <b>Numeracy and Mathematics: Number and measure/ Data and analysis</b></p> <ul style="list-style-type: none"> <li>I have investigated the everyday contexts in which simple fractions, percentages or decimal fractions are used and can carry out the necessary calculations to solve related problems.</li> </ul> <p style="text-align: right;">MNU 2-07a/ MNU 1-20b</p>
<p><b>Important teaching note</b> These are suggested activities and resources to <b>support</b> your teaching rather than guide it. Additional teaching input may be required to develop learners' knowledge, skills and understanding of some of these concepts, particularly of percentages and decimals.</p>		

**Activity 1.1** (25 min)

- Show slide 3 of the *Unit 3 Slideshow (Sessions 1 – 3)* and ask learners: *How can we measure well-being?* Depending on their existing knowledge and understanding, you may need to spend some additional time discussing what we mean by well-being. You may need to prompt learners by providing some examples such as being healthy or having enough food to eat.
  - **Think:** Ask learners to think about the question on their own for about a minute.
  - **Pair:** Give learners a couple of minutes to compare their ideas.
  - **Share:** Spend a few minutes sharing some learners' suggestions as a whole group. You might like to record their ideas on the board.

*Note that Unit 1 Sessions 5 and 6 support learners in developing their understanding of inequality and potential well-being indicators.*

- Show slides 4 to 15 to provide examples and explanations of some different indicators which governments around the world use to measure the 'well-being' of the people in a country.
- Distribute copies of *Measuring well-being* (Resource sheet 1). This table has selected data from each of the four Young Lives countries (Ethiopia, India, Peru and Viet Nam) and the UK. Differentiated copies of the table are provided, with the original data rounded to one or two decimal places and to the nearest whole number. The differentiated tables are also provided in slides 16 to 18.
- Say that this data is calculated by the World Bank, an organisation which lends money to different countries to support economic growth and development, for example major infrastructure projects or education programmes. The World Bank also uses some of these measures to work out how 'well' a country is doing. Support learners to understand the meanings of the different measures included.
- Ask learners to look at the *Measuring well-being* table. Ask them some questions about the data, such as:
  - *What is the life expectancy in Peru?*
  - *What percentage of the population has access to electricity in Ethiopia?*
  - *What is the difference between the number of Internet users per 100 people in the UK compared to the number in India?*
  - *Which country has the lowest life expectancy?*
- Ask learners to work in pairs to come up with their own questions about the data. Allow time for learners to share their questions and try to answer the questions of others.

**Activity 1.2** (25 min)

- *Note: The idea for this activity comes from the book If the World Were a Village by David J Smith and Shelagh Armstrong (A & C Publishers Ltd; 2Rev Ed edition ISBN-13 978-0713668803). Published in 2004, this book explains facts about the global population by representing the world as a village of just 100 people.*

- Display the *Measuring well-being* table (Resource sheet 1) again. Ask learners if it is easy or difficult to understand. Discuss other ways in which the data could be presented, for example by using a bar or pie chart.
- Share *How many people?* (Resource sheet 2). Explain that the sum of the population of Ethiopia, India, Peru, Viet Nam and the UK is 1,638 million. Ask learners to imagine that all of these people were represented by a village of 100 residents. The diagram shows what the make-up of this village would be. Explain that we call this an infographic. An infographic is a chart or diagram that represents some data or information visually. Ask learners which they think is easier to understand, data in a table or data in an infographic like this.
- Explain that we could use an infographic like this to represent other indicators. Say that some of the indicators in the table are measured as a percentage which means the number per 100 people.
- Now give learners copies of: *Which is which?* (Activity sheet 1). Explain that this activity sheet uses similar infographics to represent some of the country data from the *Measuring well-being* table. Ask learners to use the table to work out which country is being represented in each diagram.
- *Answers: A = Ethiopia, B = India, C = Viet Nam, D = Peru*
- Finally, give each learner a copy of *Show me the data* (Activity sheet 2). Ask learners to use other indicators expressed as percentages from the *Measuring well-being* table to create their own infographics. If they have indicators expressed as decimals, ask them to first round their numbers to the nearest whole number.

### Differentiation

- *Differentiated copies of the Measuring well-being table (Resource sheet 1) are provided, with the original data rounded to one or two decimal places and to the nearest whole number. The activity could also be made easier by focusing on a smaller number of well-being indicators.*

### Further ideas

- Learners could carry out further rounding activities using their *Measuring well-being* tables.
- Learners could collect well-being data from their class or school or use the Internet to research other well-being indicators. They could then create infographics to represent the data. Learners could explore different ways of representing the information visually using dried pulses, sticky notes or beads.
- Learners could investigate the use of infographics in the media.

### Terms of use

Copyright © Oxfam GB / Young Lives

You may use these photographs and associated information for the educational purposes at your educational institution. With each use, you must credit the photographer named for that image and Oxfam and Young Lives. You may not use images and associated information for commercial purposes or outside your educational institution. All information associated with these images relates to the date and time that project work took place.

## Measuring well-being

## Resource sheet 1a

Data is rounded to the nearest whole number.

Indicator	Ethiopia	India	Peru	Viet Nam	UK
Life expectancy at birth (years)	65	69	75	76	81
Population (millions)*	105	1339	32	96	66
Infant mortality rate (per 1,000 live births)	41	35	12	17	4
Access to improved water source (% of total population)	52	93	87	95	100
Access to electricity (% of total population)	43	85	95	100	100
Motor vehicles (per 1000 people)	3	18	67	14	516
Mobile phone subscriptions (per 100 people)	50	85	116	128	120
Internet users (% of total population)	15	30	45	47	95
Rural population (% of total population)	80	66	21	65	17
Urban population (% of total population)	20	34	79	35	83
Primary school enrolment (% of relevant age group)	85	92	95	98	100
Living in extreme poverty (% of total population)	27	21	4	3	0

**Data source:** World Bank Open Data: [data.worldbank.org/](http://data.worldbank.org/)

Data collected from 2006 – 2017.

*\*Note: Although population isn't used to measure how 'well' a country is doing it is often used to calculate other well-being indicators such as access to water or electricity.*

## Measuring well-being

## Resource sheet 1b

Data is rounded to 1 decimal place.

Indicator	Ethiopia	India	Peru	Viet Nam	UK
Life expectancy at birth (years)	65.5	68.6	75.0	76.3	81.0
Population (millions)*	105.0	1339.2	32.2	95.5	66.0
Infant mortality rate (per 1,000 live births)	41.0	34.6	11.9	17.3	3.7
Access to improved water source (% of total population)	51.5	92.6	86.8	95.0	100.0
Access to electricity (% of total population)	42.9	84.5	94.9	100.0	100.0
Motor vehicles (per 1000 people)	3.0	17.6	67.3	13.6	515.6
Mobile phone subscriptions (per 100 people)	50.0	85.2	116.2	127.5	120.0
Internet users (% of total population)	15.4	29.5	45.5	46.5	94.8
Rural population (% of total population)	79.6	66.5	20.8	65.1	16.9
Urban population (% of total population)	20.4	33.5	79.2	34.9	83.1
Primary school enrolment (% of relevant age group)	85.4	92.3	95.2	98.0	99.9
Living in extreme poverty (% of total population)	26.7	21.2	3.5	2.6	0.2

**Data source:** World Bank Open Data: [data.worldbank.org/](http://data.worldbank.org/)

*Data collected from 2006 – 2017.*

*\*Note: Although population isn't used to measure how 'well' a country is doing it is often used to calculate other well-being indicators such as access to water or electricity.*

## Measuring well-being

## Resource sheet 1c

Data is rounded to 2 decimal places.

Indicator	Ethiopia	India	Peru	Viet Nam	UK
Life expectancy at birth (years)	65.48	68.56	74.98	76.25	80.96
Population (millions)*	104.96	1339.18	32.17	95.54	66.02
Infant mortality rate (per 1,000 live births)	41.00	34.60	11.90	17.30	3.70
Access to improved water source (% of total population)	51.50	92.60	86.80	95.00	100.00
Access to electricity (% of total population)	42.90	84.53	94.85	100.00	100.00
Motor vehicles (per 1000 people)	3.05	17.55	67.34	13.61	515.55
Mobile phone subscriptions (per 100 people)	50.02	85.17	116.24	127.53	119.98
Internet users (% of total population)	15.37	29.55	45.46	46.50	94.78
Rural population (% of total population)	79.62	66.47	20.77	65.12	16.93
Urban population (% of total population)	20.38	33.54	79.23	34.88	83.07
Primary school enrolment (% of relevant age group)	85.44	92.25	95.15	97.97	99.94
Living in extreme poverty (% of total population)	26.70	21.20	3.50	2.60	0.20

**Data source:** World Bank Open Data: [data.worldbank.org/](http://data.worldbank.org/)

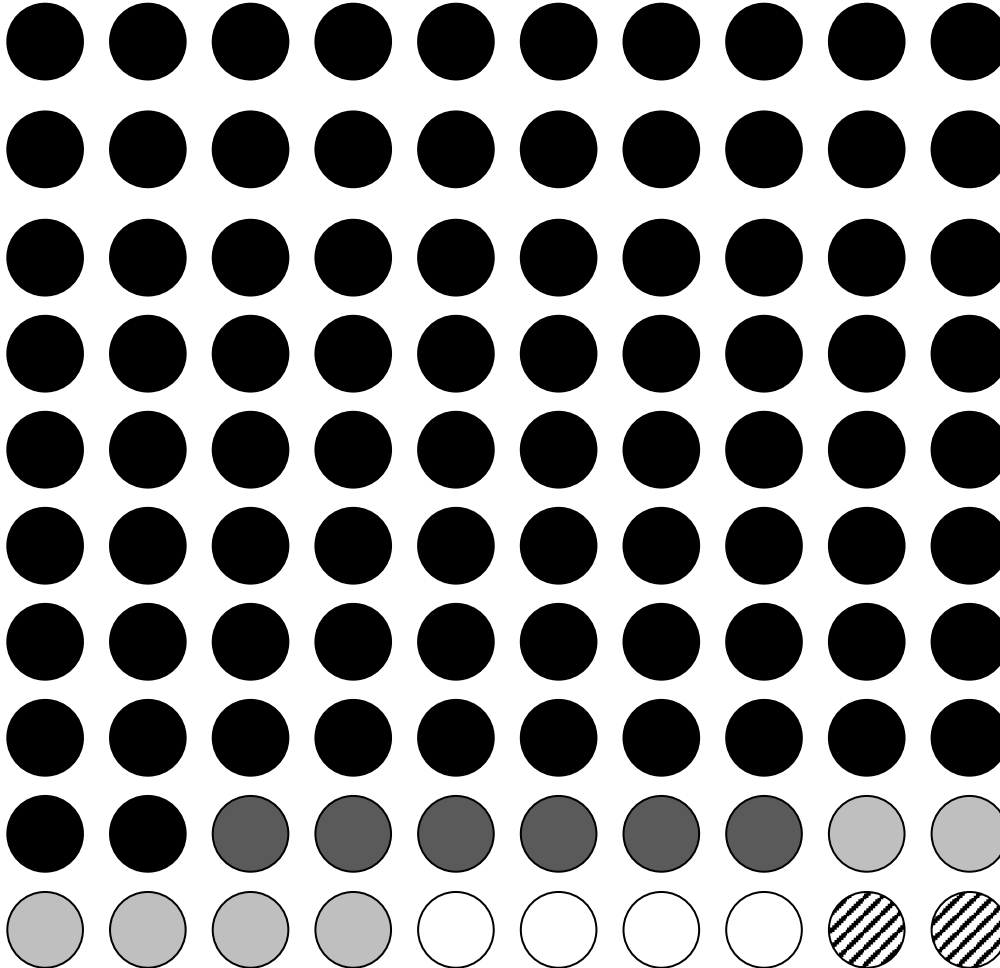
Data collected from 2006 – 2017.






*\*Note: Although population isn't used to measure how 'well' a country is doing it is often used to calculate other well-being indicators such as access to water or electricity.*

## How many people?

## Resource sheet 2

The sum of the population of Ethiopia, India, Peru, Viet Nam and the UK is 1,638 million people. What if all of these people were represented by an imaginary village of 100 residents? This is what it would look like:



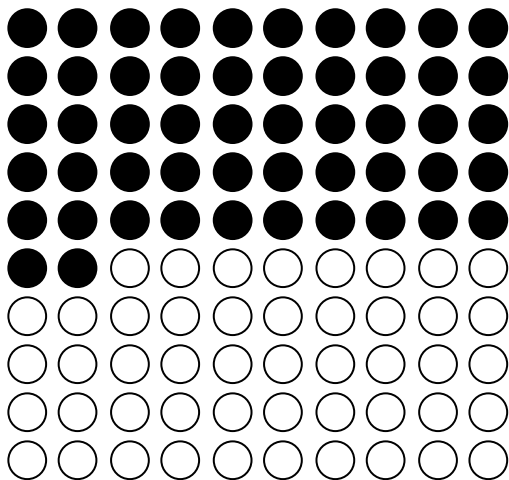
-  82 people would be from India
-  6 people would be from Ethiopia
-  6 people would be from Viet Nam
-  4 people would be from the UK
-  2 people would be from Peru

## Which is which?

## Activity sheet 1

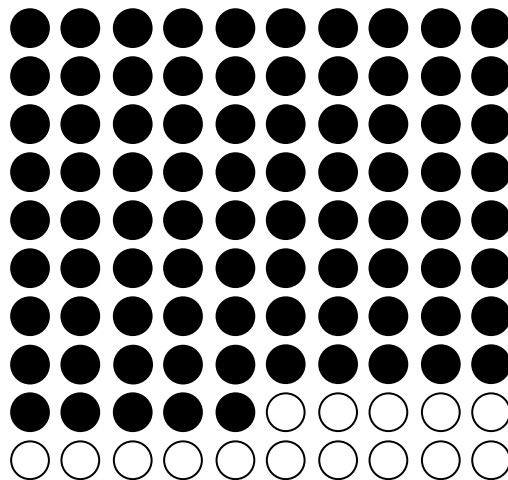
Look at the infographics below. Can you work out which country is being shown in each one? Use the *Measuring well-being* table to help you.

### A. Has access to water



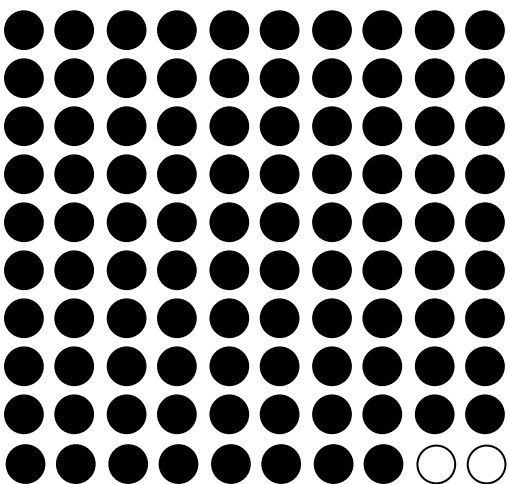
Country: \_\_\_\_\_

### B. Has access to electricity



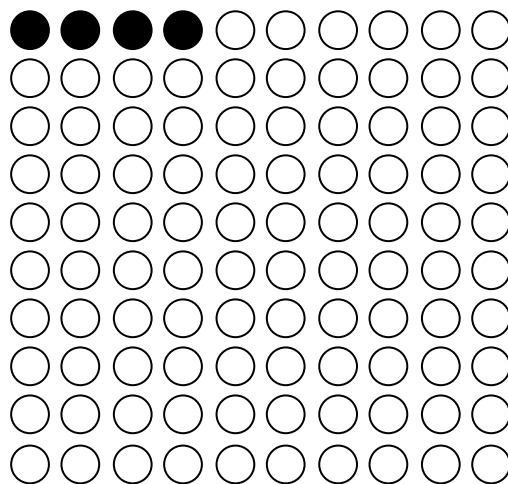
Country: \_\_\_\_\_

### C. Enrolled in primary school



Country: \_\_\_\_\_

### D. Lives in extreme poverty



Country: \_\_\_\_\_

### Key

Yes

No



