Bringing data to life –statistical approaches to global issues: 11-14 years

Session overview	Learning Objectives	Learning Outcomes	Key Questions	Activities
Session 1: Geography *Collecting data in Ethiopia* Learners are introduced to Ethiopia and explore the challenges of data collection.	• To develop basic geographical knowledge about the Ethiopia • To explore the data collection process • To understand some of the problems and difficulties of data collection	• Learners will use maps, writing and photos to develop an idea of what Ethiopia is like and an understanding of the activities and outputs of the collective action groups • Learners will be able to explain some of the challenges of data collection by reading and discussing statements	• What is Ethiopia like? • How could you find out more about the people, places and activities we are learning about in this lesson? • What difficulties might researchers encounter when collecting data?	Starter: Questioning images Activity 1.1: Background information Activity 1.2: Finding out more and data collection challenges
Session 2: Maths or Geography *Collective action groups, scatter plots and sample size* Learners find out about collective action groups, plot their own scatter graphs and learn about the importance of sample size. They will also gain practice identifying outliers and interpreting charts.	• To understand what collective action groups are • To develop data handling and presentation skills • To understand the limitations of sampling data rather than using the whole population	• Learners will read information from a scatter graph • Learners will produce a scatter graph • Learners will recognise the importance of sample size when analysing data • Learners will recognise the importance of random sampling	• What do we mean by collective action? • What information can be read off a scatter graph? • What effect does only using a small sample have? • How can we reduce any bias in the data we choose? • What effect does belonging to a collective action group have on the levels of honey produced?	Activity 2.1: Understanding collective action groups Activity 2.2: Interpreting scatter graphs Activity 2.3: Comparison with a sample graph Activity 2.4: Plotting scatter graphs Activity 2.5: Comparison to the whole data set
Session 3: Maths *Using collective action groups to understand measures of central tendency* Learners will be introduced to the concepts of mean, median and mode, and understand the differences between these three measures. Learners will recognise the characteristics of frequency charts in terms of measures of central tendency.	• To develop understanding of different ways to calculate measures of central tendency	• Learners will compare mean, median and mode using the same data • Learners consider how the shape of frequency distributions affect their averages	• What impact does using mean, median and mode have on results? • What effect does including additional values have on the mean, median and mode? • Which measure of central tendency is the best to use?	Starter: What should we look at? Activity 3.1: Calculating mean, mode and median Activity 3.2: Drawing grouped frequency diagrams Activity 3.3: Calculating the mean, median and mode from a grouped frequency diagram Activity 3.4: What can central tendencies tell us?

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Session 4: Maths *The wealth of women in collective action groups* Learners explore the wealth of women who belong to collective action groups and the wealth of women who do not belong to groups using pie charts. Learners repeat this comparison using bar charts.	• To develop data handling and presentation skills • To understand some of the difficulties of data collection and sampling	• Learners will draw and interpret pie charts • Learners will compare proportions represented in pie charts • Learners will compare samples and proportions of data • Learners will draw, interpret and compare bar charts	• What does a pie chart represent? • What impact does sample size have on results? • How do the levels of education and wealth of women in collective action groups compare with those not in groups? • What are the benefits of using a bar chart?	Starter: True or false? Activity 4.1: Construct a pie chart (review of KS2) Activity 4.2: Pie chart or bar chart? Activity 4.3: Constructing and comparing pie and bar charts
Session 5: Maths or Geography *The age and years of experience of women in collective action groups* Learners will plot data using different types of charts to learn which charts are better for representing which types of data. They will also gain practice interpreting charts and develop their knowledge of the women in collective action groups compared with those not in groups.	• To develop data handling and presentation skills • To understand that different presentation techniques can change the way data is perceived	• Learners will produce a bar graph, comparative bar graph, percentage bar and/or pie chart • Learners will compare data sets represented in bar graphs and pie charts • Learners will decide which presentation technique is best for this data	• Is a pie chart, bar graph or comparative bar graph better to present this data? • How does the age and years of experience of women in collective action groups compare with those not in groups?	Activity 5.1: Methods of displaying data Activity 5.2 Which data presentation technique? Plenary: Choosing data presentation techniques for different audiences
Session 6: Geography *Were women better off as a result of collective action groups?* Learners use charts and case studies to evaluate the impact on women's empowerment of being part of a collective action group.	• Learners will use data and case studies to explore the impact of collective action groups • Learners will use case studies and data as evidence and examples in their writing	• Learners will use data to explore the impact of collective action • Learners will use case studies and data as evidence and examples in their writing	• To what extent does collective action have an impact on women's empowerment?	Starter: What do you need to know? Activity 6.1: The impact of collective action groups on women's empowerment Activity 6.2: Interpreting charts Activity 6.3: Using case studies Activity 6.4: Writing a response