

Lesson plan 2: The relationship between energy use and economic development

Syllabus topic: Patterns in resource consumption

Lesson length: 1 hour

Learning objectives for the lesson

Students should be able to:

- understand the general relationship between energy use and economic development
- assess the strength of the relationship between these two variables through analysis of a scattergraph
- apply Spearman's rank correlation coefficient to the same data sets
- develop a more detailed understanding of the relationship between energy use and economic development, including awareness of the main reasons for anomalies in this relationship.

Content

Time	Content
10 minutes	Students work in pairs to suggest what the relationship is between energy use and economic development. Brief feedback to the whole group.
10 minutes	<p>Hand out copies of Worksheet 8. Figure 8.1, a scattergraph, shows the relationship between the two variables for all countries with more than 20 million people.</p> <p>Teacher/student questions on the construction of a scattergraph.</p> <p>Students insert a line of best-fit on their copies of the scattergraph.</p> <p>Students write a paragraph to describe the relationship shown on the graph.</p> <p>A sample of students read their paragraphs to the whole group.</p>
20 minutes	<p>Working in groups of four, students:</p> <ul style="list-style-type: none"> • read off the scattergraph figures for both energy use and GDP per capita (four per student) for all 16 individual countries named • insert this data into Figure 8.2 • rank the data for both variables and then apply Spearman's rank correlation coefficient;* a statement relating to the significance of the results must be included. <p>* Check on accuracy of results.</p>
20 minutes	In the same groups, students discuss the reasons for the positive correlation between the two variables and the reasons for the anomalies shown on the graph.



Consolidation

Time	Content
15 minutes	Follow-up. Students write individual summaries of the two tasks discussed above.