



EduTrend Contents

W4C · GEOGRAPHY & ENVIRONMENTAL STUDIES · HIGH SCHOOL

Urban Change Survey

Measure environmental quality across a town

Ages 15–18

Level: Advanced

2 × 60 minutes

Teams of 3

Activity 05

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 student worksheets · assessment checklist

ACTIVITY 05 · AT A GLANCE

Urban Change Survey

Students investigate how environmental quality and land use vary along a transect from a town centre outwards. They design a survey using environmental quality scores, land use mapping and pedestrian or traffic counts, collect data, analyse it with a correlation test and evaluate the causes of change.

Learning outcomes

By the end of the session students can:

- design a systematic sampling strategy along a transect;
- collect quantitative and qualitative data using environmental quality surveys;
- analyse data using graphs and Spearman's rank correlation;
- evaluate patterns using urban geography models and secondary data.

KEY WORDS

transect · land use · environmental quality · bipolar survey · correlation · Spearman's rank · urban model · regeneration

CURRICULUM LINKS

Geography: urban environments and independent fieldwork (upper secondary). Maths: correlation and statistics. Geography for Life (2012), standards 12 and 18.

1**ASK**

What is the question?

2**LOCATE**

Find it on a map

3**OBSERVE**

Look in the field

4**MEASURE**

Collect data

5**ANALYSE**

Spot patterns

6**EXPLAIN**

Why here?

Materials (per team)

- Base map of the town with a transect line and 8–10 sampling points
- Environmental quality (bipolar) survey sheets
- Clickers or tally sheets for pedestrian and traffic counts
- Camera; measuring tape
- Spreadsheet software; census or land use data
- Worksheets 1, 2 and 3

Before the session

- Plan a safe transect with sampling points at regular distances from the centre.
- Complete a risk assessment for the route and seek any permissions needed.
- Agree scoring criteria for the environmental quality survey and practise scoring from photos.
- Download relevant census or land use data for comparison.

SAFETY

Follow off-site procedures: groups of three, fixed route, check-in times, high-visibility vests, no approaching strangers.

ACTIVITY 05 · SESSION PLAN

Step by step

Session 1 covers design, practice scoring and fieldwork. Session 2 covers data processing, statistics and evaluation.

Time	What happens	Say or ask
S1 0–15 min Design	Introduce the hypothesis: environmental quality increases with distance from the centre. Agree methods and scoring.	<i>"How will you reduce bias in scoring?"</i>
S1 15–60 min Fieldwork	Teams collect scores, land use and counts at each point.	<i>"Are you recording at the same time for each count?"</i>
S2 0–20 min Process	Enter data in a spreadsheet and draw scatter graphs.	<i>"What does the graph suggest?"</i>
S2 20–40 min Statistics	Calculate Spearman's rank correlation and test significance.	<i>"Is the relationship significant?"</i>
S2 40–60 min Evaluate	Compare with urban models and secondary data; write conclusions and evaluation.	<i>"What other factors explain anomalies?"</i>

CHALLENGE CARD (print or copy onto the board)

Test whether environmental quality increases with distance from the town centre, using primary data, a statistical test and secondary evidence.

ACTIVITY 05 · FACILITATOR NOTES

The geography in brief

A transect samples systematically along a line so change with distance can be measured. Environmental quality surveys score features such as litter, noise, greenery and building condition on a scale, turning subjective judgements into comparable numbers. Spearman's rank correlation measures the strength and direction of a relationship between two ranked variables.

Urban models describe typical patterns, such as zones of land use rings around a centre, but real towns are shaped by history, transport routes, planning and regeneration. Anomalies are valuable: explaining why a point does not fit the pattern often reveals the most interesting geography.

Common ideas to listen for

- "Correlation proves causation." A correlation shows association; causes must be argued with further evidence.
- "Scores are objective." Environmental quality scores are subjective; calibration and several scorers reduce bias.
- "Urban models describe real towns." Models simplify; real towns rarely match them exactly.

Adapting the activity

Support

Provide a pre-planned transect, a data table and a worked example of Spearman's rank.

Stretch

Add a second variable such as house prices or deprivation data and compare correlations.

WORKSHEET 1

Survey design

Name: _____

Class: _____ Date: _____

Plan before you go.

Hypothesis and variables

Sampling strategy

Point	Distance from centre (m)	Grid ref	Land use
1			
2			
3			
4			
5			
6			
7			
8			

WORKSHEET 2

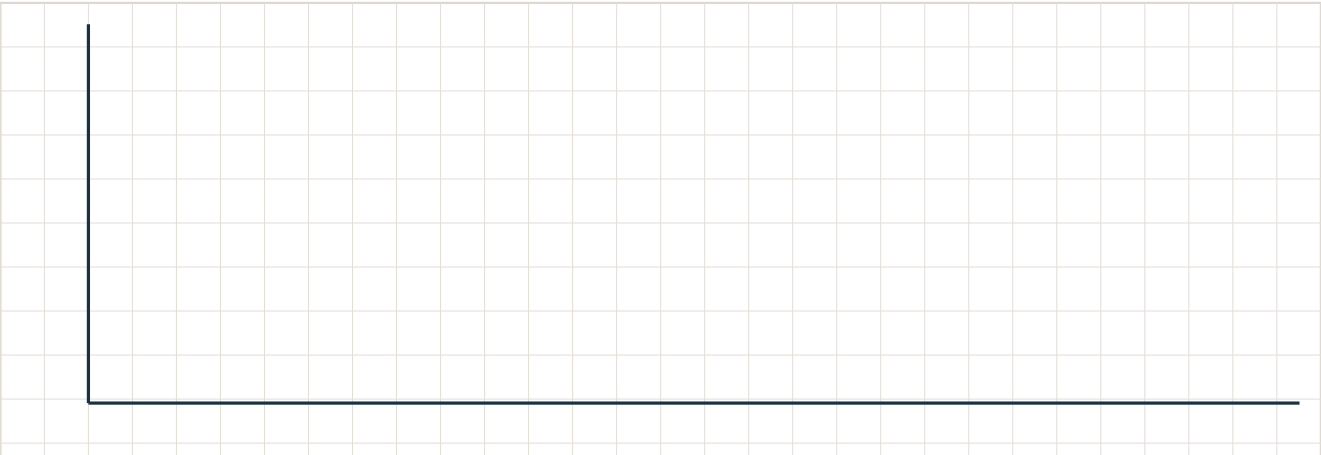
Data and statistics

Process your data.

Results

Point	EQ score	Rank	Distance	Rank	d	d²
1						
2						
3						
4						
5						
6						
7						
8						

Scatter graph



y-axis: environmental quality score

x-axis: distance from centre (m)

WORKSHEET 3

Conclusion and evaluation

Write as you would for a fieldwork report.

Conclusion

State the correlation value, its significance and whether the hypothesis is supported.

Explaining the pattern

Evaluation of methods

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight students; copy as needed.

Student	Designs a valid sampling strategy	Analyses data statistically	Evaluates using theory and evidence

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Urban Change Survey is a sample activity from the EduTrend Contents W4C Geography & Environmental Studies programme (high school, level: advanced). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

© 2026 EduTrend Contents. This activity may be printed and copied for use with students in your own school, club or home. It may not be resold or published elsewhere. Photos: Michael Myers / Unsplash.