



EduTrend Contents

W4C · SOCIOLOGY & PSYCHOLOGY · HIGH SCHOOL

Research Methods Lab

Run an ethical experiment on attention

Ages 15–18

Level: Advanced

75 minutes

Pairs

Activity 05

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

ACTIVITY 05 · AT A GLANCE

Research Methods Lab

Students replicate a version of the Stroop effect: naming ink colours of colour words that match or conflict. They write hypotheses, control variables, follow ethics guidelines, collect reaction times, calculate means and consider a statistical test, then evaluate validity and reliability.

Learning outcomes

By the end of the session students can:

- write directional and null hypotheses;
- operationalise and control variables in an experiment;
- apply ethical guidelines to research with people;
- analyse data with descriptive statistics and evaluate validity.

KEY WORDS

experiment · independent variable
· dependent variable · hypothesis ·
repeated measures ·
counterbalancing · validity ·
reliability · ethics

CURRICULUM LINKS

Psychology: research methods and cognition. Maths: statistics. Ethics: professional codes of conduct for research with people.

1

WONDER

Why do people act like this?

2

PREDICT

Make a hypothesis

3

ASK OR TEST

Survey, observe, experiment

4

RECORD

Collect data

5

ANALYSE

Find patterns

6

REFLECT

Ethics and meaning

Materials (per pair)

- Two printed or on-screen lists: congruent (colour words in matching ink) and incongruent (colour words in different ink)
- Stopwatches or timing app
- Consent and debrief forms
- Spreadsheet
- Worksheets 1, 2 and 3

Before the session

- Prepare congruent and incongruent lists of equal length.
- Prepare consent and debrief forms.
- Check for participants with colour vision differences and provide alternatives.
- Plan counterbalancing: half the class do congruent first.

SAFETY

Participation is voluntary; participants can withdraw. Data are anonymous. Debrief everyone. Offer an alternative task to anyone with colour vision differences.

ACTIVITY 05 · SESSION PLAN

Step by step

Insist on precise operational definitions and counterbalancing; these are the heart of good experimental design.

Time	What happens	Say or ask
0–10 min Hook	Try reading an incongruent list aloud. Why is it hard?	<i>"What is going on in your head?"</i>
10–20 min Design	Pairs write hypotheses, define variables and plan counterbalancing.	<i>"What must stay the same?"</i>
20–40 min Collect	Pairs gain consent, run both conditions and record times.	<i>"Are you timing consistently?"</i>
40–60 min Analyse	Enter class data, calculate means and standard deviations; discuss an appropriate test.	<i>"Is the difference large and consistent?"</i>
60–75 min Evaluate	Write evaluation of validity, reliability and ethics.	<i>"Would this happen outside the lab?"</i>

CHALLENGE CARD (print or copy onto the board)

Design and run an ethical Stroop experiment, analyse the class data and evaluate the validity of your conclusions.

ACTIVITY 05 · FACILITATOR NOTES

The social science in brief

In 1935 John Ridley Stroop showed that people are slower to name the ink colour of a word when the word names a different colour. This suggests reading is so automatic that it interferes with colour naming. The independent variable is the condition (congruent or incongruent); the dependent variable is time taken.

In a repeated measures design each participant does both conditions, so counterbalancing the order controls practice and fatigue effects. Validity asks whether the study measures what it claims; reliability asks whether results are consistent. Professional codes, such as those of national psychological societies, require consent, confidentiality, the right to withdraw and debriefing.

Common ideas to listen for

- “A significant result proves the hypothesis.” It supports it; other explanations must be considered.
- “Lab results always apply to real life.” Ecological validity may be limited.
- “Ethics only matters for dangerous studies.” All research with people needs ethical care.

Adapting the activity

Support

Provide hypothesis frames and a results table with formulas already set up.

Stretch

Carry out a Wilcoxon signed-rank test or paired t-test on the class data and interpret the result.

WORKSHEET 1

Experimental design

Name: _____

Class: _____ Date: _____

Plan before collecting data.

Design

Element	Our decision
Directional hypothesis	
Null hypothesis	
Independent variable	
Dependent variable (operationalised)	
Controls	
Counterbalancing	

WORKSHEET 2

Data

Record times in seconds.

Results

Participant	Congruent (s)	Incongruent (s)	Difference
1			
2			
3			
4			
5			
6			
Mean			
Standard deviation			

WORKSHEET 3

Evaluation

Write as a researcher.

Conclusion

Validity and reliability

Ethical issues and how we addressed them

FOR THE TEACHER

Assessment checklist

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

Student	Designs a controlled experiment	Analyses data accurately	Evaluates validity and ethics

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

ABOUT THIS ACTIVITY

Research Methods Lab is a sample activity from the EduTrend Contents W4C Sociology & Psychology 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: Julia Taubitz / Unsplash.