**Activity Overview**

The aim of this activity is to help students to outline and evaluate twin studies. Outlining and explaining the importance of twin studies is not an easy task and one of the examiners’ reports, the examiner said: "MZ/DZ twin studies were popular, but often the rationale was confused and sometimes inaccurate." The purpose of this handout is to help students overcome this issue.

**Resources Required**

- Explaining Twin Studies Handout 1
- Explaining Twin Studies Handout 2

**Teacher Instructions**

**Teaching & Learning Strategy A**

This is an independent activity designed to provide students with an opportunity to read about concordance rates and apply concordance rates to two different twin studies. You may wish to model an answer to the first example if your students require support/assistance, or simply provide them with the time to complete this work independently.

Once the students have completed both handouts, use these as an opportunity to discuss how twin studies are used to support genetic explanations and the potential strengths/limitations of twin studies.
Outlining & Evaluating Twin Studies – Handout 1

Outlining and explaining the importance of twin studies is not an easy task. On one of the examiners’ reports, the examiner said: “MZ / DZ twin studies were popular, but often the rationale was confused and sometimes inaccurate.”

In the aggression topic, one of the potential essay questions is ‘discuss genetic factors involved in aggressive behaviour.’ Therefore, the ability to understand, outline and explain what twin studies show, is very important.

Twin studies are measured using concordance rates, which are usually expressed as a percentage. 100% means that all twins have a behaviour in common and 0% means that no twins have a behaviour in common. Psychologists compare concordance rates of MZ twins and DZ twins to determine the extent to which a behaviour is a result of nature (genetics) and nurture (environment).

<table>
<thead>
<tr>
<th>Result</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MZ Concordance Rate Is 100%</td>
<td>Behaviour is entirely genetic</td>
</tr>
<tr>
<td>MZ Concordance Rate Is Significantly Less Than 100%</td>
<td>Behaviour is partly the result of environment</td>
</tr>
<tr>
<td>MZ Concordance Rate Is Similar To DZ Concordance Rate</td>
<td>Behaviour is partly attributed to the environment (nurture)</td>
</tr>
<tr>
<td>MZ Concordance Rate Is Significantly Higher Than DZ Concordance Rate</td>
<td>Behaviour is partly attributed to nature (genetics)</td>
</tr>
</tbody>
</table>

When using twin studies, the research findings and explanation form part of the knowledge (AO1) and the issues with twin studies forms part of the evaluation/discussion (AO3).

Task: Complete the two tables below to explain what each of the twin studies show, and evaluate the issues with using twin studies, for the genetic explanation of aggression.
Coccaro et al. (1997) compared monozygotic versus dizygotic twin pairs. In this study, twin pairs were examined for the concordance of criminal behaviour for both twins. The MZ twin pairs were found to have a 50% concordance whereas DZ twins were only 19%.

This suggests...

[Explain what the concordance rate shows in relation to aggression]

Evidence / Explain:

The behaviour (aggression) cannot be explained by the environment because...

Therefore...

This matters because...

[Link your argument back to the question/topic]
**EXPLAINING & EVALUATING TWIN STUDIES**

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>EVALUATION</th>
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<tbody>
<tr>
<td>McGuffin and Gottesman (1985) found a concordance rate of 87% for MZ twins and 72 for DZ twins for aggressive and antisocial behaviour.</td>
<td>However, one issue with twin studies is...</td>
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This suggests...
**[Explain what the concordance rate shows in relation to aggression]**

The behaviour (aggression) cannot be explained by genes alone, because...

**Therefore...**

**This matters because...**
**[Link your argument back to the question/topic]**