Hormones: sources and targets

Student activity • observation and reasoning

YEAR 11 / LESSON 79 / BIOLOGY + SCIENCE (DOUBLE AWARD)

The question

How do hormones coordinate responses in different organs?

Use the supplied examples, record your reasoning and correct it using evidence.

Equipment

- Student booklet, pencil and ruler
- Blank source-target-effect table paper

Paper, modelling and written reasoning only. No chemicals or biological samples are handled.

Course coverage: Shared Biology / Double Award: 2.94. Biology-only extension: 2.95B ADH, FSH and LH.

Plan, model or apparatus sketch

Draw and label the apparatus or biological model; identify one limitation.

Method and reasoning

Read the whole sequence before starting

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1. Make a source-target-effect table for adrenaline, insulin, testosterone, oestrogen and progesterone.

2. Link adrenal glands and adrenaline with preparation for activity; link pancreatic insulin with lowering raised blood glucose.

3. Link testes and testosterone with male secondary sexual development, and ovarian oestrogen/progesterone with reproductive development and uterine-lining regulation.

4. Explain that hormones travel in blood but only appropriate target cells respond.

5. Biology extension: add ADH, FSH and LH, distinguishing where ADH is made from where it is released.

6. Compare hormonal communication with nervous communication without claiming every hormone is slow or acts everywhere.

Cleanup

- Return models and keep the corrected work.

Record your evidence

Blank spaces are for your own work

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Reference and task data

Shared sources: adrenal glands—adrenaline; pancreas—insulin; testes—testosterone; ovaries—oestrogen and progesterone. Biology extensions: pituitary FSH/LH regulate ovarian events; hypothalamic ADH is released by the posterior pituitary and affects kidney water reabsorption. More detailed cycle interactions follow in the reproduction lessons.

Example / trial	Observation / evidence	Explanation / limit
Evidence / comparison		
Explanation		
Limit / correction		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

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1. Where is insulin released?

2. What is its broad glucose effect?

3. Where is adrenaline released?

4. Which shared hormone supports uterine-lining maintenance?

5. Biology: which pituitary hormones regulate ovarian events?

6. Biology: is ADH made in the posterior pituitary?