BIOLOGY YEAR 12 - MODULE 5 - LESSON 18

Large-Scale Population Genetics Data - Disease, Conservation, Human Evolution

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

Large collaborative data sets allow biologists to detect broad genetic trends that single samples cannot show. These data help investigate disease inheritance, conservation risk and human evolutionary relationships, but larger data sets still do not remove uncertainty completely.

- How large-scale data is used in conservation, disease inheritance and human evolution.
- Why larger data sets strengthen pattern detection and comparison.

2. Success Criteria

By the end, you should be able to:

- How large-scale data is used in conservation, disease inheritance and human evolution.
- Why genetic diversity matters in populations.
- Why larger data sets strengthen pattern detection and comparison.

3. Key Terms

Large-scale collaborative project
A project that combines data from many researchers, sites or populations.

Bottleneck
A sharp reduction in population size that decreases genetic diversity.

Genetic diversity
The variety of alleles present within a population.

Disease inheritance study
A study of how variants linked to disorders are distributed within and between groups.

Shared ancestry
A relationship suggested by common genetic patterns inherited from earlier populations.

Inference
A conclusion drawn from evidence, which may still contain uncertainty.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "How large-scale data is used in conservation, disease inheritance and human evolution.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Why genetic diversity matters in populations.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Large-Scale Population Genetics Data - Disease, Conservation, Human Evolution: "Why larger data sets strengthen pattern detection and comparison.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Large-Scale Population Genetics Data - Disease, Conservation, Human Evolution but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Large-Scale Population Genetics Data - Disease, Conservation, Human Evolution?

- [ ] A. Identify the key concept being tested
- [ ] B. Write every fact from memory
- [ ] C. Ignore the command word
- [ ] D. Skip examples and evidence

2. Which answer would show stronger understanding of Large-Scale Population Genetics Data - Disease, Conservation, Human Evolution?

- [ ] A. An answer with accurate terms and reasoning
- [ ] B. A copied definition only
- [ ] C. A single-word response
- [ ] D. An answer with no example

3. What should you do if a question asks you to explain?

- [ ] A. Link the idea to a reason or cause
- [ ] B. List unrelated facts
- [ ] C. Only draw a diagram
- [ ] D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: How large-scale data is used in conservation, disease inheritance and human evolution.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Why genetic diversity matters in populations.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Why larger data sets strengthen pattern detection and comparison.

BAND 5 4 MARKS

One thing I still need help with: