Year 13 Science: A socio-scientific issue: aerial 1080 in Aotearoa

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Why is the use of aerial 1080 a socio-scientific issue rather than a purely scientific question?

2. Explain how 1080 kills a possum.

3. Why does 1080 not build up along food chains?

4. A campaign website says a stream was poisoned after a drop but gives no test results. What two checks would you make before using the claim?

5. Give one personal action and one societal action that respond to the risk to dogs.

Fix the mistake

6. Correct this statement: "My position is that 1080 is good, because DOC says it works."

7. Correct this statement: "Hunters only oppose 1080 because they are biased."

8. Correct this statement: "1080 poisons the food chain because it builds up in animals that eat others."

9. Correct this statement: "My action is that the government should fix it."

Answer key (for parents and tutors)

1. Why is the use of aerial 1080 a socio-scientific issue rather than a purely scientific question?
   Biology can describe what 1080 does, but whether to use it depends on how people weigh benefits to native birds against costs such as animal suffering, risks to dogs and cultural concerns, so people hold different views.
2. Explain how 1080 kills a possum.
   It is converted into fluorocitrate, which blocks the Krebs cycle enzyme aconitase, so aerobic respiration makes little ATP and the heart and brain fail.
3. Why does 1080 not build up along food chains?
   It is water soluble and broken down by soil and water microbes, and it is not stored in fat, so it does not accumulate in predators.
4. A campaign website says a stream was poisoned after a drop but gives no test results. What two checks would you make before using the claim?
   Validity: is there test data, is it current and peer reviewed, and does independent water monitoring agree? Bias: who runs the site and what values or interests shape what it reports?
5. Give one personal action and one societal action that respond to the risk to dogs.
   Personal: keep dogs muzzled and on a lead in drop areas until signs are removed. Societal: require warning signs and carcass monitoring until baits and carcasses have broken down.
6. Correct this statement: "My position is that 1080 is good, because DOC says it works."
   A position needs your own reasoning from the biology; quoting one organisation is not a justification.
7. Correct this statement: "Hunters only oppose 1080 because they are biased."
   Name their value and their evidence, then evaluate it; bias explains which facts they stress, not whether those facts are true.
8. Correct this statement: "1080 poisons the food chain because it builds up in animals that eat others."
   1080 is water soluble and broken down by microbes; it does not bioaccumulate, although carcasses can poison dogs that eat them.
9. Correct this statement: "My action is that the government should fix it."
   An action is specific and linked to an implication, such as funding research into species-specific toxins to answer welfare concerns.