Geography Unit Year 5

INVESTIGATION BOOKLET

- How do people and environments influence one another?

PART A: Posing questions

1. Pose 2 – 3 questions that, after investigation, would give us answers to how healthy your local creek is.

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2. What negative impacts do you <u>think</u> are impacting on your creek?

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3. What would tell you that your creek is unhealthy?

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4. How could you find out how healthy your creek is?

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5. Describe what you think a healthy creek looks like.

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PART B: Scientific testing

Visit the creek.

Use the observation and water quality data collection worksheets to scientifically test the creek. Go down to the creek with a clipboard and pencil to record your findings.

Name: _____ **Date:** _____

Observation of creek - testing site.

Restoration level (circle): Restored Not restored

Location: _____

Ecology

1. What animal life would you expect to see in and around the creek area?

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2. How much <u>canopy cover</u> is there over and around the creek? Tick.

Little canopy cover (lots of sunlight gets through)	**Moderate canopy cover**	**Lots of canopy cover** (little sunlight gets through)

3. Imagine an area that is about 4m x 4m square with one edge of your square being the creek bank. Fill in the table below to describe the habitat and plant life by the creek at <u>ground level</u>.

Type of plant/habitat	**Abundance at ground level (%)**	**Prevents erosion. (√)**
Trees		
Shrubs/small plants		
Grasses		
Woody debris/leaf litter		
Bare earth		
Total:	**100%**	

4. Can you see any evidence of erosion? What do you think has caused it? What would help to prevent this?

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5. How complex is the waterway? Are there lots of different places for aquatic life to live in e.g. riffles, ponds, instream vegetation (submerged, emergent, floating), overhanging vegetation, logs, rocks etc.

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Climate

6. Describe the weather today, over the past week and over the past month. Consider the temperature and rainfall.

	Today	Past Week	Past Month
Temperature			
Rainfall			

7. Describe the level and colour of the water in the creek?

Level: _____

Colour: _____

8. Do you think the weather has impacted on the level and colour of the water? Yes / No
   Explain your answer.

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Visible pollutants

9. Can you see any sign of pollution in or around the creek? Record the different types.

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10. Can you see any stormwater drains nearby that may feed rain water into the creek? What potential pollutants might be washed through these stormwater drains?

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Water Quality Analysis – testing site.

Record the results of the water quality analysis in the table below.

Date: _____

Site restoration level (circle): Restored Not restored

Location: _____

Visible data		Measured data	
	Results		**Results**
Depth (m)		**Temperature (°C)**	
Width (m)		**pH**	
Flow		**Conductivity (µS/cm)**	
Visibility		**Dissolved O_2 (mg/L)**	
Odour		**Turbidity (NTU)**	
Foaming			
Algae (% cover)			

PART B: Analysis of testing

1. Use your observational data findings and the 'Guidelines for water quality testing' worksheet (page 1) to assess how healthy your creek is. Complete the table below.

Indicator	Result	Tick the level		
		Low	Normal	Above
Water Temperature (°C)				
pH				
Conductivity (µS/cm)				
Dissolved O_2 (mg/L)				
Turbidity (NTU)				
Algae %				
Colour				
Foaming				
Odour				
Visible pollutants		N.B. Any litter found is not normal.		
Lab results				
Ammonia N				
Total Nitrogen (N)				
Total Phosphorus (P)				

2. Look at the results that are above or below normal levels. Use page 2 (Analysing the results) of 'Guidelines for water quality testing' to analyse what it could mean. Complete the table for those pollutants only which are above or below the normal range.

Indicator	Above or Below	What could this indicate	What actions would reduce the impact
e.g. pH	e.g. above	- point source pollution or alkali in the waterway e.g. industrial waste	Educate community about the impact of dumping rubbish and storm water pollution prevention.

PART C: Propose a course of action, plan what you need to do and 'take action'.

NB: If you found all indicators fell in the 'normal' range, this doesn't mean that there isn't anything we can do. Water quality and creek ecology fluctuate daily and therefore we can still choose a course of action to improve the local creek even further.

1. Choose an action to improve the health of your creek.

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2. Why are you choosing this action? What evidence led you to choose this course of action? Explain.

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3. Explain in detail how your action will impact the environmental characteristics of places locally and globally. Consider comparing 'in action' with 'action'.

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4. Plan:

Proposal: What do you propose to do and why?

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Equipment required:

_____

_____

People you will need to talk to:

_____

Safety considerations:

_____

_____

Time frames:

_____

Are there any costs involved? Are there any problems to consider?

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_____

PART D: Reflection

Have you enjoyed this unit of work? Why?

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What did you enjoy doing the most?

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What have you learnt from this unit?

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Will you make any changes to your daily lives? If yes, what would they be. If no, why not?

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