## Lesson 7: Quantifying Changes in the Land over Time with Landsat



## **Learning Assessment Record Chart for Teachers**

Use this chart to record student levels of achievement for each of the student products you assign. The chart uses a scale of 5-1. Your check in the 5 column represents the highest level of achievement, and your check in the 1 column represents the lowest level.

	Student Product	Indicator of Achievement	5	4	3	2	1
I.	Map of land cover from the GLOBE activity, "Getting to Know Your Satellite Imagery"	IA. The map is complete. It shows all four layers of geographic information: water bodies, transportation features, buildings and developed areas, and vegetated areas.					
		IB. The map is clearly drawn and labeled. It is easy to understand and interpret					
II.	Class decisions about land cover types (Step 2)	IIA. Student participates in brainstorming discussions					
		IIB. Student shows curiosity and asks questions.					
		IIC. Student indicates openness to new ideas.					
		IID. Student reaches conclusions only when all available facts are in hand					
		IIE. Students uses logical arguments					
III.	Visual comparison of 1991 and 2000 Landsat images (Step3)	IIIA. Student response uses complete sentences.					
		IIIB. Student response describes specific changes in land cover for specific geographic locations identified by grid square letter and number.					
IV.	Land cover change map (1990-2000) (Step 5)	IVA. The map is complete					
		IVB. The map is clearly drawn and labeled. It is easy to understand and interpret.					
		IVC. The map features the same land cover types as established by the class.					
V.	Calculating percent, land cover changes (Step 6)	VA. All calculations have been done.					
		VB. Calculations are free of errors.					
VI.	Comparing different teams results for the	VIA. Differences in the two (or more) teams' results are described specifically.					

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same areas of				
change (Step 7)				
Change (Step 7)	VIB. Possible reasons for differences are			
	thoughtfully addressed.			
	VIC. Extra credit – Student response refers			
	to the requirement of science methodology			
	that most work must be done with the same			
	results, in order to be acceptable for			
	publication.			
VII. Students responses				
to guiding questions	VIIA. Student uses complete sentences.			
(Step 8)	VIIA. Student uses complete sentences.			
(Glop 6)	VIIB. Student provides specific and detailed			
	explanations.			
	VIIC. The response to Question 3 requires			
	knowledge of ecology, which is not taught			
	through this activity. However, the student			
	should demonstrate at least some level of			
	thoughtful speculation about the			
	consequences of land cover change.			
VIII. EXTENSION:				
Predictive land cover	VIIIA. The map is complete. It shows all			
map for 2025 and	land cover types used by the class for this			
description of map	activity.			
(Step 9)	,			
	VIIIB. The map is clearly drawn and			
	labeled. It is easy to understand and			
	interpret.			
	VIIIC. The student explanations of land			
	cover changes depicted on the map take			
	into account any geographic or political			
	features that might not be suitable for the			
	land cover changes indicated, such as			
	rivers, rocky areas, mountainsides, or			
	political boundaries.			
	Student total scores for each column			

## To calculate a student's grade on this activity:

Total the number of checks in each of the five columns, then multiply the number of checks in each column times the achievement level it represents.

Example: If student X scored — Then —

4 in the Level 5 column 4 x Level 5 = 20 points

9 in the Level 4 column 9 x Level 4 = 36 points

8 in the Level 3 column 8 x Level 3 = 24 points

2 in the Level 2 column 2 x Level 2 = 4 points

0 in the Level 1 column — Total Score = 84 points

Use this approach only if student work on all products should be equally weighted.











