

# MORPHING LESSON PLANS INTO GAMEPLAY

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# Lesson Plan

- ▣ Content within Subject Domain
- ▣ Goals for the Learner
- ▣ Scope and Sequence that will be encountered
- ▣ Methodologies incorporated for engagement
  - Lecture
  - Group work
  - Individualized learning or research
  - Interactions/ Collaboration with other students
    - ▣ *Gamification of the above*
- ▣ Resources

# Lesson Plan Example

## ▣ eGFI: Build a Portable Sundial

( <http://teachers.egfi-k12.org/build-a-sundial/> )

## ▣ Summary

- Students in grades 6 to 8 investigate the accuracy of sundials and the discrepancy that lies between “real time” and “clock time.” They track the position of the sun during the course of a relatively short period of time as they make a shadow plot, a horizontal sundial, and a diptych sundial. (The activity may be abridged to include only one or two of the different sundials, instead of all three.)

▣ **Grade Level:** 6-8

▣ **Time:** 90 minutes

- *Remember the GAMIFICATION question on Methodologies ... this effects time*

# A common TENSION in Gameplay Development

- ▣ What is the difference between  
PLAY & LEARNING?
- ▣ What is the difference between  
RECESS & the CLASSROOM?
- ▣ The difference is the  
STUDENT'S *INTENT* and *EXPECTATIONS*
- ▣ What if a student learns something that they  
can experience during recess?
- ▣ EXPERIENTIAL LEARNING

# 4xEID

## 4 STEP EXPERIENTIAL ID PROCESS

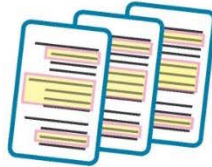
### 1 DEFINE & PRIORITIZE GOALS

Define the *Needs & Goals* of the individual, student, group, teacher, community, organization, or institution.

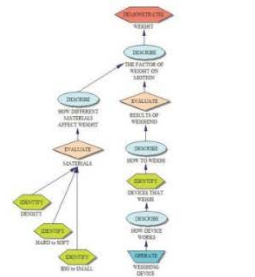


### 2 OPERATIONALIZE CONTENT

Create a *Content Hierarchy*, *Prioritize* and *Target Levels of Learning*, and establish *Sequencing Flows*

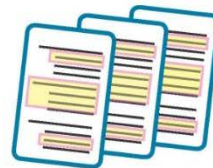
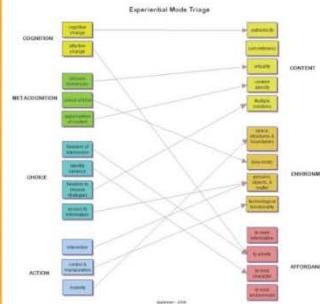


IDENTIFIER	CONTENT	LEVELS		SUBDOMAINS				LEVELS		LEVEL
		IDENT	KNOW	KNOWLEDGE	SKILLS	ATTITUDE	VALUES	KNOWLEDGE	SKILLS	
ALGEBRA.CONTENT.1	SETS OF NUMBERS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	OPERATIONS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	RELATIONS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	FUNCTIONS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	NUMBERS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	ALGEBRA	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	GEOMETRY	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	STATISTICS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	SCIENCE	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	ARTS	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	LANGUAGE	1	1	1	1	1	1	1	1	1
ALGEBRA.CONTENT.1	TECHNOLOGY	1	1	1	1	1	1	1	1	1



### 3 BRAINSTORM & MAP EXPERIENCES

Brainstorm effective *Experiential Modes* for each *Learning Context*, & embed *Scenarios & Action Vectors*



### 4 OPERATIONALIZE SCENARIOS

Create *Experiential Scenarios* that combine both *Action & Learning Vectors*; then build *Prototypes* and *Test*

INFO Elements	INTERACTIONS	STORY
<ul style="list-style-type: none"> <li>WHICH SIDE IS THE VARIABLE? JUST FACTS?</li> <li>WHICH ANGLE TO USE?</li> </ul>	<ul style="list-style-type: none"> <li>Galileo then climbs up in the tower and we see him appear at the top ready to drop the object.</li> </ul>	<ul style="list-style-type: none"> <li>Galileo then climbs up in the tower and we see him appear at the top ready to drop the object.</li> </ul>
<ul style="list-style-type: none"> <li>CALCULATING SPEED (USING GALILEO'S FORMULA TO DETERMINE THE ACCELERATION PER SECOND)</li> </ul>	<ul style="list-style-type: none"> <li>the JKIDS will need to interact in a Huddle multiple times to compare data that each can offer. They will need to consult their PDA to gather formulae. They will need to yell at Galileo who is up in the tower.</li> </ul>	<ul style="list-style-type: none"> <li>Ultimately the JKIDS will need to have him perform this experiment dropping two equally weighted balls from the tower. They will need to measure the height of the tower through trigonometry; make off the distance with the use of a protractor, right through a sextant to measure the angle from ground to top, and then calculate the height. We also know the formulae that Galileo eventually came up with, and they can see that to draw him the results, which in effect implies that without their help the primary theory falling objects being 8 meters per second squared may not have been arrived at or certainly not as quickly.</li> </ul>

**Game Play Analysis Log**







Game: *Shrek II*  
 Played: *GA0508 PIE14\_SHK2*  
 Date: *05/08/2006*

TIME	EVENTS	CHARACTERS	CHALLENGES
00	X X X	X X X	X X X
05	X X X	X X X	X X X
10	X X X	X X X	X X X
15	X X X	X X X	X X X
20	X X X	X X X	X X X
25	X X X	X X X	X X X
30	X X X	X X X	X X X
35	X X X	X X X	X X X
40	X X X	X X X	X X X
45	X X X	X X X	X X X
50	X X X	X X X	X X X
55	X X X	X X X	X X X
60	X X X	X X X	X X X
65	X X X	X X X	X X X
70	X X X	X X X	X X X
75	X X X	X X X	X X X
80	X X X	X X X	X X X
85	X X X	X X X	X X X
90	X X X	X X X	X X X
95	X X X	X X X	X X X
100	X X X	X X X	X X X

# BLOOM's Master Design Chart (step 2)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	V
1		CONTENT	1. RECALL			2. UNDERSTAND			3. APPLY						TOTALS
2			A	B	C	D	E	F	G	H	I	J	K	L	
3	KEY CONCEPT	Action Verbs used in TASK description	IDENTIFY	DESCRIBE	RECOGNIZE	DISTINGUISH BETWEEN	GIVE EXAMPLE	PREDICT	DEMONSTRATE	DISCOVER	OPERATE	IMPLEMENT	COMPUTE	OUTLINE	CONTENT TOTALS
4	OBJECTS:	Big to Small	2	1		2									5
5	OBJECTS:	Hard to Soft	1	1		2									4
6	OBJECTS:	Density	3	1		2									6
7	MATERIALS:	Their EFFECT on WEIGHT		3				5	2						10
8	MATERIALS:	DIFFERENCES in SIZE		3				5	2						10
9	WEIGHING TOOLS:	Appropriate SCALE	1		1	1				1		2			6
10	WEIGHING TOOLS:	Functionality of Tool	1		1	1				1		2			6
11	WEIGHING TOOLS:	UNITS of Measure	1		1	1				1	3	2			9
12	WEIGHING TOOLS:	TOOL Operation		1							3	2			6
13	WEIGHING TOOLS:	Reporting Results		1								2	3		6
14	FALLING OBJECT:	UNITS of Measure	1		1	1				1		2	3		9
66		LEVEL TOTALS	79	110	98	104	116	78	61	102	6	21	40		

# drBOB's Experiential Strategy List

Game Play Actions		
	<b>STATIC</b>	<ul style="list-style-type: none"> <li>• When a player first enters a scene</li> <li>• When a player must analyze the situation</li> <li>• When a player is busy looking, listening, or reading</li> <li>• When a player is "outside" the game</li> </ul>
	<b>INPUT</b>	<ul style="list-style-type: none"> <li>• When a player hears and understands audio</li> <li>• When a player reads and understands text</li> <li>• When a player interacts with people, places, and/or things that provide meaningful information</li> </ul>
	<b>STRATEGIZE</b>	<ul style="list-style-type: none"> <li>• When a player encounters new information or experiences, and stops for metacognition or strategy formation</li> <li>• When a player enters into interaction with other elements within the game and then initiates action based on that information</li> <li>• When the path of action can be observable as a pattern that suggests a strategy</li> </ul>
	<b>ACTION</b>	<ul style="list-style-type: none"> <li>• [Action Vector] When a player takes action to move within the environment, to interact, to emote, to fire weapons, or in general anything observable that the player does</li> <li>• [Learning Vector] When a player takes actions that correspond to progress within the game that match those goals within the Master Design Chart</li> </ul>
	<b>T&amp;E EXPLORE</b>	<ul style="list-style-type: none"> <li>• When a player is moving randomly or unpredictably within the game environment</li> <li>• When a player is looking for something and must search in a number of locations</li> </ul>
	<b>INTERACT</b>	<ul style="list-style-type: none"> <li>• When a player interacts with people, places, and/or things</li> <li>• When a player touches, picks up, or stores items in the environment</li> <li>• Interaction may range from shooting, throwing, hitting, touching, confronting, dialoging with, driving a vehicle, or simply moving along side or following another character.</li> </ul>





# Brainboard & add Resources (step 3) into Scenario of Experiences (step 4)

## Game Play Actions



○	(4:00) 16:30	<ul style="list-style-type: none"> <li>• PPT: drBOB EXPERIENTIAL STRATEGIES LIST</li> <li>• There are only 6 basic action categories that are possible</li> </ul>
○	(1:30) -	<ul style="list-style-type: none"> <li>• PPT: drBOB EXPERIENTIAL DESIGN CHART</li> <li>• Like Blooms, but with experiential actions instead</li> </ul>
	- 18:00	<ul style="list-style-type: none"> <li>• ENTERED Content Chunks From LP - ADDED Domains</li> <li>• ADDED RANK IMPORTANCE FOR EACH CONTENT CHUNK</li> <li>• SORTED on any column</li> <li>• COPIED &amp; PASTED HIGH RANKING CHUNKS INTO CARDS</li> </ul>
○	(2:00) 20:00	<ul style="list-style-type: none"> <li>• HAND OUT CARDS</li> </ul>
○	(10:00) -	<ul style="list-style-type: none"> <li>• PPT: YOUR FIRST INTERACTION WITH THE CONTENT</li> <li>• CLICK: INPUT</li> </ul>
○	-	<ul style="list-style-type: none"> <li>• CLICK: ACTION</li> </ul>
○	-	<ul style="list-style-type: none"> <li>• CLICK: INPUT GUIDED ACTION</li> </ul>
○	30:00	<ul style="list-style-type: none"> <li>• CLICK: INTERACT</li> </ul>
•	(10:00) 40:00	<ul style="list-style-type: none"> <li>• PPT: CHALLENGE QUESTION #1</li> <li>• Height of the Sun [2 min]</li> <li>• GAME MECHANICS SUGGESTIONS</li> </ul>

# Your First Interaction with the Content



## **INPUT**

- Note the DOMAIN HEADING and COLOR of the card you have



## **ACTION**

- MOVE into GROUPS of persons who have the SAME type of card like yours



## **INPUT GUIDED ACTION**

- EACH OF YOU –  
READ OUT LOUD TO THE GROUP  
what is printed on your card



## **INTERACT**

- After each person reads their card, the GROUP needs to arrive at an agreement that the GROUP as a whole understands about the “fact” stated on the card.

# Challenge Question #1

- ▣ What does the HEIGHT of the Sun have to do with the TIME of DAY?



Discuss with your group  
what the best answer is  
( *2 minutes* )



What GAME MECHANICS can you think of  
for students to learn this content?  
(*everyone*)

# Challenge Question #2

- ▣ How do you tell **WHERE YOU ARE** on the **EARTH**, and what **INSTRUMENTS & GLOBAL MARKERS** are available for you to describe this accurately?



Discuss with your group what the best answer is  
( *6 minutes* )



What **GAME MECHANICS** can you think of for students to learn this content?  
(*everyone*)

# Challenge Question #3

- ▣ What does the TILT of EARTH'S AXIS have to do with the CHANGING SEASONS?

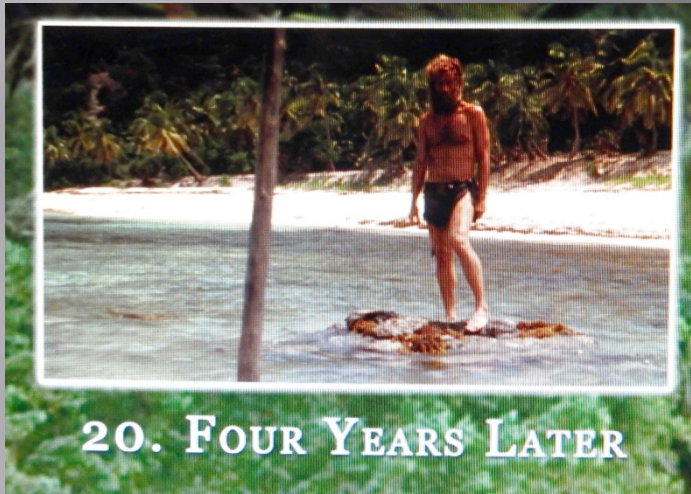


Discuss with your group &/or other groups what the best answer is  
( 8 minutes )



What GAME MECHANICS can you think of for students to learn this content?  
(everyone)

# Castaway Movie Evidence



# Challenge Question #4

▣ How can you **EXPLAIN** the pattern of the **SUN** displayed in the **CASTAWAY** movie?  
*(everyone)*



Discuss with your group &/ or other groups what the best answer is  
*( 8 minutes )*



What **GAME MECHANICS** can you think of for students to learn this content?  
*(everyone)*

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