An Iterative
4 step Experiential ID Process
(4xEID)

Presented by
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4 STEP EXPERIENTIAL ID PROCESS

1

DEFINE & PRIORITIZE

GOALS

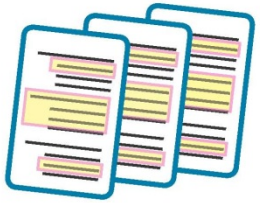
Define the ***Needs*** & ***Goals*** of the individual, student, group, teacher, community, organization, or institution.

2

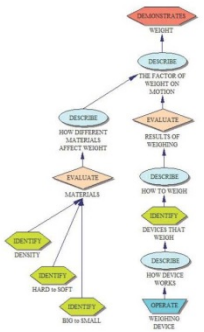
OPERATIONALIZE

CONTENT

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



KEY STAGE IT	CONTENT Action Verbs used in TASK description	1. RECALL A IDENTIFY	B DESCRIBE	C RECOGNIZE	2. UNDERSTAND D DIFFERENTIATE BETWEEN	E GIVE EXAMPLES	F PREDICT	3. APPLY G DEMONSTRATE	H CALCULATE	I SOLVE	J IMPLEMENT	K COMPUTE	L OUTLINE
FALLING OBJECTS	UNITS of Measure	1			1	1				1		2	2
FALLING OBJECTS	Distance				1	1		2		2		2	4
FALLING OBJECTS	Speed				1	1		2		2		2	4
FALLING OBJECTS	Trajectory				1	1		2		2		2	4
FALLING OBJECTS	FORCE	1	2				3	1					2
FALLING OBJECTS	MOMENTUM	1	2				3	1					2
FALLING OBJECTS	Factor of WEIGHT on FALLING OBJECT		2			3	4		1	5			
WAYS OF KNOWING	Scientific Method	2	2			2	1						
WAYS OF KNOWING	Observation	2	2			2	1						
WAYS OF KNOWING	Conjecture	2	2			2	1						
WAYS OF KNOWING	Philosophize	2	2			2	1						

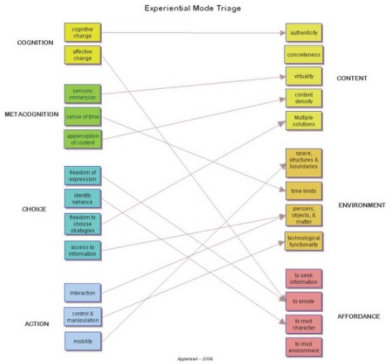


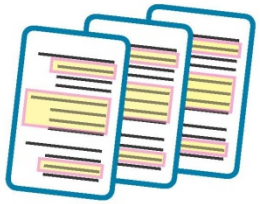
3

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***

appelDESIGN SCRIPT 5/20/2011 5

INFO Elements	INTERACTIONS	STORY
○ WHICH SIDE IS THE VARIABLE JUST FACTD ○ WHICH ANGLE TO USE		Galileo then climbs up in the tower and we see him appear at the top ready to drop the objects.
○ CALCULATING SPEED ○ USING GALILEO'S FORMULA TO DETERMINE THE ACCELERATION PER SECOND	○ the iKIDS will need to interact in a HUDDLE multiple times to compare data that each can offer. ○ They will need to consult their PDA to gether formulas ○ They will need to yell at Galileo who is up in the tower	Ultimately the iKIDS will need to have him perform this experiment dropping two equally shapped balls from the Tower. They will need to measure the height of the tower through trigonometry, piee off the distence with the use of a pedometer, sight through a sextant to measure the angle from ground to top, and then calculate the height. We also know the formula that Galileo eventually came up with, and they can use that to show him the results, which in effect implies that without their help the primary theory falling objects being 9.8 meters per second squared may not have been arrived at (or certainly not as quickly).

Game Play Analysis Log

GAME: Shrek II
PLAYER: 060508_PIE14_SHK2
DATE: 05/08/2006

COG = I Learned or enjoyed something here
MET = I had to really concentrate here
OPT = I felt there were options available here
ACT = I was able to control-manipulate things (OR) felt lost here
CNT = Information was encountered here
ENV = Challenges or NPR interactions encountered here (explain)
AFF = The game gave me options to: (explain)

TIME	COG	MET	OPT	ACT	CNT	ENV	AFF	COMMENTS
:00	X	X			X			Listens and Views Cut Scene
:25			X			X	X	Begins searching with Shrek
:30	X	X		X		X	X	Finds Slug -Clobbers it -Eye Ball #1
:33		X						Is not aware he has to hit it twice
:40				X		X		Contin- searching
:43	X	X		X		X		Tries to beat down Outhouse
1:02				X		X		Contin-searching, jumping, hitting
1:40	X	X		X		X		Switches Character to Donkey
1:45				X		X		Contin-seraching, jumping, kicking
1:55	X	X				X		Switches Character back to Shrek

Master Design Chart
Stakeholder GOALS

	A	B	C	D	E	F	G	H
1	Stake Holder	1. RECALL	2. UNDERSTAND	3. APPLY	4. ANALYZE	5. SYNTHESIZE	6. EVALUATE	IMPORTANCE
2	INSTITUTION							0
3								0
4	INSTITUTION UNIT		4					4
5								0
6	UNIT MEMBERS							0
7								0
8	CLIENTS							0
9								0
10	SUBJECT-MATTER EXPERTS		3	5	3		2	13
11								0
12	STAFF / FACULTY		4	8	4	3	6	25
13								0
14	MANAGEMENT		4					4
15								0
16	OPERATIONAL TEAMS							0
17								0
18	OPERATIONAL SUBGROUPS							0
19								0
20	INDIVIDUALS	2	5	8				15
21								0
22								
23								

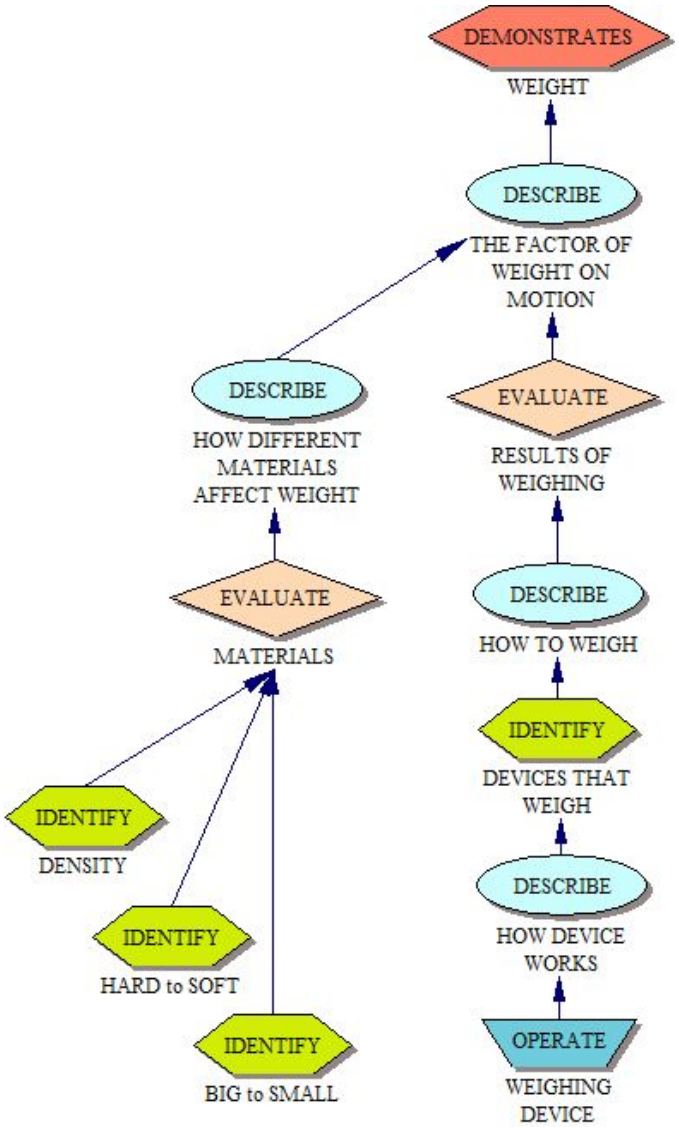
Master Design Chart
CONTENT

2

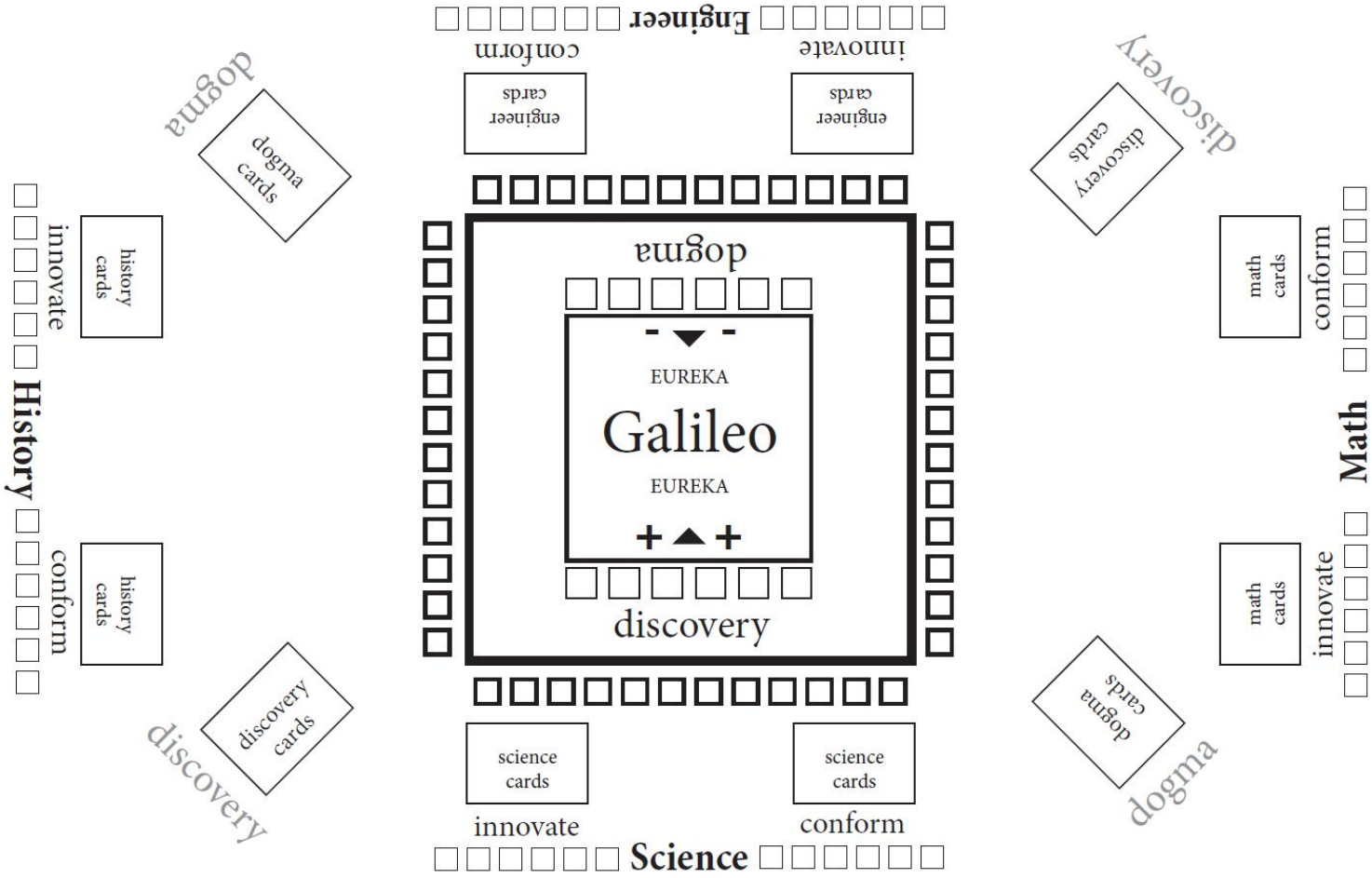
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	V
1		CONTENT	1. RECALL			2. UNDERSTAND			3. APPLY						TOTALS
2			A	B	C	D	E	F	G	H	I	J	K	L	
3	KEY CONCEPT	**Action Verbs** used in **TASK** description	IDENTIFY	DESCRIBE	RECOGNIZE	DISTINGUISH BETWEEN	GIVE EXAMPLE	PREDICT	DEMONSTRATE	DISCOVER	OPERATE	IMPLEMENT	COMPUTE	OUTLINE	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		

Content Hierarchy

2



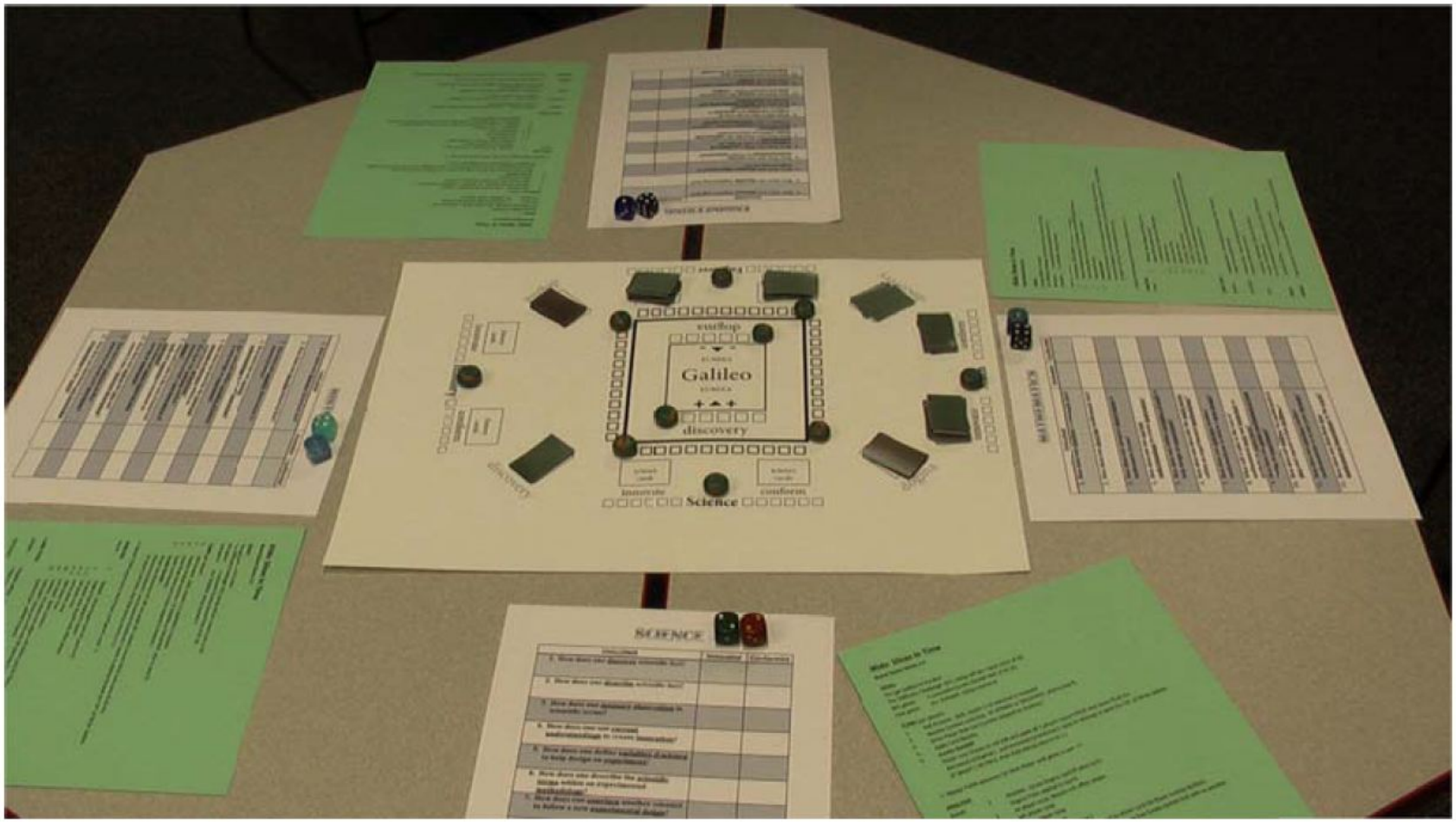
Game Mechanics: Play Space



Game Mechanics: Rules

- **GOAL:**
- The get Galileo to Eureka!
- The ‘Difficulty Challenge’ (DC) rating will be a total score of 60.
- Win game: A successful Eureka Gambit Roll of DC 60.
- Lose game: the ‘DOGMA’ rating reaches 12.
- ALL PLAYERS start at Conformist and have STEM IQ of 0.
- **TURN** (per player):
- 1. HISTORY – Problem Card turned over.
- 2. Each Player Draws their Next PROCESS card. (Card has both conformist and innovator views listed.)
- 3. Each Player Rolls 1d6. 1-3 draw DOGMA. 4-6 draw Discovery .
- Draw card and apply results as appropriate. Add Dogma/Discovery point to tally as apt.
- (ROLL 1, dogma point. ROLL 6, Discovery point.)
- 4. HISTORY – Question Card turned over.
- 5. HUDDLE – group discusses and then answers Question for an Innovator point.
- 6. Apply results to STEM IQ scores. Play Dogma/Discovery cards as appropriate.
- 5. **Eureka Gambit!**
- Player may choose to roll 2d6 and apply all 4 players current ROLE rank score PLUS the
- discovery(+)/dogma(-) and innovate(+)/conform(-) totals to attempt to beat the ‘DC’ of 60 for Galileo.
- (IF player’s roll FAILS, they lose 1d6 innovator points.)
- >> Repeat TURN sequence for Next Player until game is over. <<

Game Mechanics: Testing



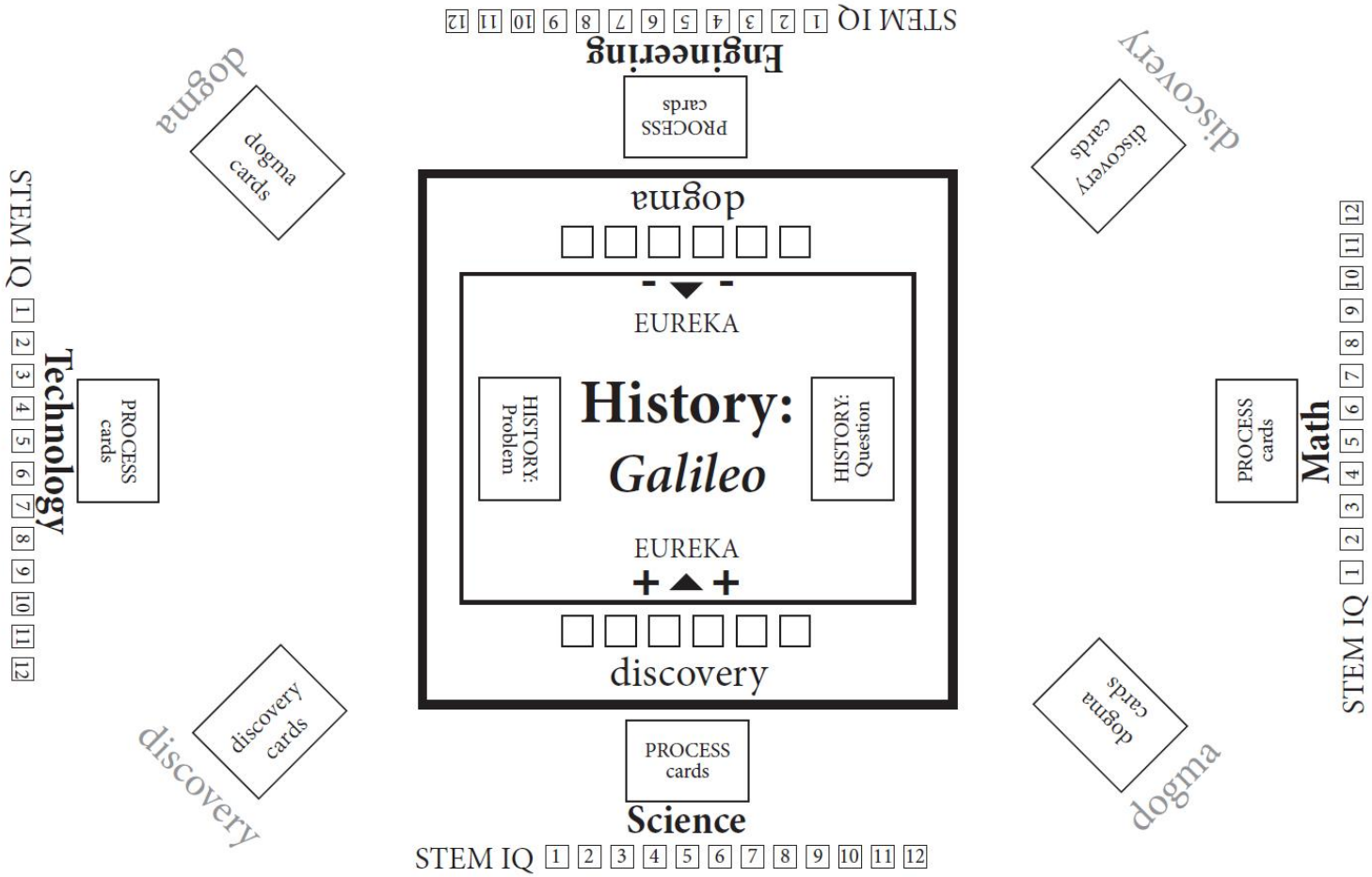
Game Mechanics: Testing

- Insert Video here

Results of testing

- Board was too complex
- Rules were too based on dice roles
- All content was didactically presented
- Decisions from players were at too low a level of learning

Game Mechanics: Play Space



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Results of testing

- There was a need for more interaction
- The mechanics were too dependent on chance and not enough on thought process
- Assigning each player a content role (STEMH) too dependent on player competency
- Flow of the play was not fast enough to be engaging
- No chance to be engaged with rich history and/or the scientists

Learning Environment: Strategy 3

- NEED FOR MORE:
  - Content flow
  - Player Interaction
  - Engaging visuals and “Sense of Place”
  - Higher level thinking via Content Challenges
  - All players equal status
  - Team Collaboration wins the game
  - Individual paths through the game

Game Mechanics: Exploration

3

Game Mechanics: Exploration

3

Game Mechanics: Actions

4

	**STATIC**	• When a player first enters a scene • When a player must analyze the situation • When a player is busy looking, listening, or reading • When a player is "outside" the game
	**INPUT**	• When a player hears and understands audio • When a player reads and understands text • When a player interacts with people, places, and/or things that provide meaningful information
	**STRATIGIZE**	• When a player encounters new information or experiences, and stops for metacognition or strategy formation • When a player enters into interaction with other elements within the game and then initiates action based on that information • When the path of action can be observable as a pattern that suggests a strategy
	**ACTION**	• [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 • [Learning Vector] When a player takes actions that correspond to progress within the game that match those goals within the Master Design Chart
	**T&E EXPLORE**	• When a player is moving randomly or unpredictably within the game environment • When a player is looking for something and must search in a number of locations
	**INTERACT**	• When a player interacts with people, places, and/or things • When a player touches, picks up, or stores items in the environment • Interaction may range from shooting, throwing, hitting, touching, confronting, dialoging with, driving a vehicle, or simply moving along side or following another character.

Content Challenge

4

HISTORY

			CHALLENGE	Innovator	Conformist
1. How	1. How d	1. How doe	1. How does one discover historical fact?		
2. How	2. How d	2. How doe	2. How does one describe historical fact?		
3. How scien	3. How d mathe	3. How doe engineer	3. How does one quantify observation in historical terms?		
4. How unde	4. How d unders	4. How doe understa	4. How does one use current understandings to create innovation?		
5. How to he	5. How d help d	5. How doe engineer experime	5. How does one define variables of history to help design an experiment?		
6. How terms meth	6. How d within	6. How doe terms wi methodo	6. How does one describe the historical elements & relevance within an experimental methodology?		
7. How to fol	7. How d mathe	7. How doe to follow	7. How does one convince another historian to accept a new description of history?		
8. What tools expe	8. What v mathe perfor	8. What wil engineer perform	8. What will it take in the way of historical tools and materials to document an experiment?		

iKIDS: SCENE: Opening Scene

Scenario: **1b**-After 1st roll & entering iKIDS HQ Resource

4

	**STATIC**	• Players at information on the HEX and note the STEM references plus the HUDDLE indicator. • They note that the HUD SCREEN (the computer) indicates there is an orientation. • This orientation is viewable if they enter the appropriate code from the HEX
	**INPUT**	• The HEX has a code number on the HUDDLE edge • There are also other code numbers on the other STEMH edges • The graphics of the HEX are of a modern resource access room
	**INTERACT**	• The team discusses where to find the code and the logic for why one should pick the HUDDLE side. • Some players may wish to input a code from another side such as HISTORY or MATH • The team decides what to try

iKIDS: SCENE: Opening Scene

Scenario: **1b**-After 1st roll & entering iKIDS HQ Resource

4

	**Trial & Error**	• **If** the decision is to try an entry without a logic that fits the game rules or is toward a Learning Vector (such as Math or History), Then the HUD will indicate that this is not an acceptable entry. • The players will be given a hint and encouraged to try again • Through this type of play the team will learn the appropriate game mechanics expected
	**ACTION**	• **If** the decision is to try to enter the HUDDLE edge code number, the HUD SCREEN will display a CUT SCENE

iKIDS: SCENE: Opening Scene

Scenario: **1b**-After 1st roll & entering iKIDS HQ Resource

4

	**INTERACT**	• Team discusses the approach they will take to get past iKIDS HQ HEX
	**STRATIGIZE**	• By looking at the options available STEMH • And knowing from the CUT SCENE that they must select a CHALLENGE QUESTION from each of the STEMH • They decide to let each member pick the STEMH item they feel most capable of answering
	**ACTION**	• Players take turns rolling die to gain entrance to the area they wish to QUESTION • Once they gain entrance, they will receive a ranked list of CHALLENGE QUESTIONS pertaining to that item. • They may enter their answer into the HUD and receive confirmation and a code to proceed … OR • They may enter their answer into the HUD and gain FEEDBACK as to why their answer was incorrect • The FEEDBACK may provide enough help for them to retry the same question, or they may take a question of lesser value (the same as RANK).

iKIDS: SCENE: Opening Scene

Scenario: **1b**-After 1st roll & entering iKIDS HQ Resource

4

	**INPUT**	• At this point in the game the HUD informs them of the overall assignment specific to Galileo and what they must accomplish • They will also find out that different HEXs are available to lay next to the iKIDS HQ HEX (For instance one HEX is the GALILEO LAB HEX) • They also learn that the adjoining sides will determine the content addressed when entering the new HEX (STEMH)
	**ACTION**	• A player who has completed the first QUESTION from the iKIDS HQ HEX selects the GALILEO LAB HEX and aligns this new HEX so that both HISTORY edges are aligned. • There is a code along the new HEX HISTORY edge and this is entered into the HUD
	**INPUT**	• The player (as well as the rest of the team) gains information about: • The location of the lab in Pisa Italy • The TIME and DATE of the entrance • A CUT SCENE will add stylistic storytelling information

Challenge Question

4

HISTORY PROBLEM

Galileo was very familiar with the views of the day stemming from Aristotles' view that the heavier an object was, the faster it would free-fall to earth. He experimented with rolling balls of different weights along an inclined plane and found that they moved at the same rate. Fellow scientists were not convinced that this proved Aristotle wrong.

What should he do instead to convince his fellow scientists?

ANSWER:

He should form an experiment where he drops two objects of different weights, but the same shape and size, and observe if they accelerate at the same speed.

Challenge Question

4

ENGINEERING PROCESS QUESTION:	ANSWER:
What would you expect to happen if a stone were dropped into a hole that extends through the center of the earth from the North Pole to the South Pole?	**It would oscillate back and forth between the poles until it came to rest at the center of the earth**
MATH PROCESS QUESTION: **A stone is dropped from the edge of a roof:** **How long does it take to fall 4.9 meters? And what is the formula you used?**	ANSWER: 1/2 seconds A =(mg/mi)G