

PROJECT OVERVIEW

Name of Project:	How Much Should You Pay To Talk To Your Friends?				Duration: 3 weeks		
Subject/Course: 6 th Grade Honors Mathematics Class	Teacher(s): Bouwman			Grade Level: : 6 th Grade			
Other subject areas to be included, if any:	Technology						
Project Idea Summary of the issue, challenge, investigation, scenario, or problem:	Groups of students will compare per minute cost of cell phones by looking at various prepaid and contract cell phone plans to see what type of plan is a better deal for their cell phone usage.						
Driving Question	Should you be buying cell phone minutes or paying for a cell phone plan?						
Content and Skills Standards to be addressed:	Rates (A.PA.06.01) – Cost per minute Add, Subtract, Multiply, and Divide (N.FL.06.10) – positive rational numbers		Equations (A.FO.06.03, A.FO.06.05) – used to figure the initial and total cost with a plan and prepaid minutes. Graphing Equations (A.PA.06.09) – graphing the equations they created from the data.		Mean (D.AN.05.03 REVIEW) – calculate average cell phone usage per day/week/month. Collecting Data – students will collect cell phone data from their own usage.		
					T+A	E	
21st Century Skills to be explicitly <i>taught and assessed</i> (T+A) or that will be <i>encouraged</i> (E) by project work, but not taught or assessed:	Collaboration		X		Other:		
	Presentation		X				
	Critical Thinking:			X			
					Presentation Audience:		
Culminating Products and Performances	Group:	Group Assignment Sheets Presentation that includes visual representation			Class:	X	
					School:		
					Community:	X	
	Individual:	<ul style="list-style-type: none"> Graph of collected data Daily math journal Weekly cell usage data 		<ul style="list-style-type: none"> Self and team evaluations Most cost effective individual cell plan presentation 		Experts:	
						Web:	

		<ul style="list-style-type: none"> Data from different cell phone plans 	Other:
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Entry event to launch inquiry, engage students:	To engage the students' interest I am going to show commercials from various cell phone providers and show pictures of cell phones available from those cell phone providers. This will get them thinking about their phones and cell service and wondering if they are getting the best deal with what they have.
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Assessments	Formative Assessments (During Project)	Quizzes/Tests	x	Practice Presentations	x
		Journal	x	Notes	
		Preliminary Plans/Outlines/Prototypes		Checklists	x
		Rough Drafts		Concept Maps	
		Online Tests/Exams		Other: Data Collection	x
	Summative Assessments (End of Project)	Written Product(s), with rubric:		Other Product(s) or Performance(s), with rubric:	
		Oral Presentation, with rubric	x	Peer Evaluation	x
		Multiple Choice/Short Answer Test	x	Self-Evaluation	x
		Essay Test		Other:	

Resources Needed	On-site people, facilities:	Computer teacher, computer lab, math classroom
	Equipment:	Computers for research and creating spreadsheets
	Materials:	Graph paper, markers, manila folders for results of research, poster board for presentation visuals
	Community resources:	Cell phone plans and prepaid minute costs

Reflection Methods	(Individual, Group, and/or Whole Class)	Journal	x	Focus Group	
		Whole-Class Discussion	x	Fishbowl Discussion	
		Survey		Other: Discussion with individual groups	x

PROJECT TEACHING AND LEARNING GUIDE

Project: How Much Should You Pay to Talk to Your Friends?		Course/Semester: 6 th Grade Math/1 st Semester	
Knowledge and Skills Needed by Students to successfully complete culminating products and performances, and do well on summative assessments		Scaffolding / Materials / Lessons to be Provided by the project teacher, other teachers, experts, mentors, community members	
Online Research Skills	→	Instruction in using Google to find relevant websites, and bookmarking those sites for further research provided by the computer teacher.	
Excel	→	Students receive instruction in creating a spreadsheet in order to organize their collected data.	
Data Collection	→	Students will need to be taught how to research the different cell phone plans and prepaid plans in order to collect their data. In addition, students will be shown how to keep track of their own cell phone usage for a day, week, and month. If they do not have a phone they could use a relative's usage. This is to be done by computer teacher and math teacher.	
Rates	→	Students will be shown how to calculate a cost per minute rate by the math teacher.	
Finding Mean	→	This is a previously taught skill; review to make sure students understand what this measure is and how to find it.	
Writing and Solving Equations	→	Students will be taught to write and solve an equation using start-up costs, monthly usage charges, and the variable of how many minutes they use per month. To be completed by math teacher.	
Adding, Subtracting, Multiplying, and Dividing Positive Rational Numbers	→	Students will need to be able to add, subtract, multiply, and divide whole numbers and decimals in order to be successful for this	

	project. To be reviewed and taught by math teacher.
Presentation Skills	<ul style="list-style-type: none"> → <ul style="list-style-type: none"> • Mock presentation by teacher • Checklist for Presenter and audience • Visuals for Audience <p>To be taught and provided by math teacher</p>
Graphing Equations	<ul style="list-style-type: none"> → Students will need to be able to graph their equations and use the graphs they created to choose the best plan. To be taught by the math teacher.
Video Taping	<ul style="list-style-type: none"> → Students will be taught how to video tape their presentations if they are not already familiar with video recording. To be taught by the math teacher.

PROJECT CALENDAR

Project: How Much Should You Pay to Talk to Your Friends?

Data Collection Start Date: September 7, 2011
Project Start Date : October 31, 2011

PROJECT CALENDAR				
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
DATA COLLECTION START WEEK				
Labor Day No School	<ul style="list-style-type: none"> • First Day of School • Classroom Rules and Procedures • Prepare letter for parents explaining the cell phone project. <p><i>Introduce Daily Warm-ups and Friday Basic Skills Tests and Warm-up Tests per School Improvement Plan (SI)</i></p>	<ul style="list-style-type: none"> • Warm-up (SI) • MEAP Review • Small Entry Activity • Explanation of Data Collection • Show Data Collection Sheet 	<ul style="list-style-type: none"> • Warm-up (SI) • MEAP Review • Show Data Collection Sheet again • Pass out Data Collection Sheet • Give assignment to collect cell phone usage data 	<ul style="list-style-type: none"> • Warm-up and Basic Skills Tests (SI) • MEAP Review • Remind students of data collection (cell phone usage) – <i>continually remind students of data collection on a regular basis to be collected weekly</i>
PROJECT WEEK ONE				
<ul style="list-style-type: none"> • Warm-Up (SI) • Entry Activity • Know/Need to Know List • Remind students about data collection sheets, last day of collection. 	<ul style="list-style-type: none"> • Warm-up (SI) • Review of mean • Students calculate usage means: <ol style="list-style-type: none"> 1. Daily 2. Weekly 3. Monthly 	<ul style="list-style-type: none"> • Warm-up (SI) • Discussion of Expectations for teamwork • Decide on groups based on usage and current plan (students without cell phones will be placed accordingly) • First Team Meeting: roles, contract, initial task list 	<ul style="list-style-type: none"> • Warm-up (SI) • Discussion of different cell phone providers. • Begin teaching students about rates. • Students will consistently be adding, subtracting, multiplying, and dividing the numbers used in this unit. 	<ul style="list-style-type: none"> • Warm-up and Basic Skills Tests (SI) • Discussion of cell phone plans – different kinds prepaid, contract, family plans • Rates continued
PROJECT WEEK TWO				
<ul style="list-style-type: none"> • Warm-Up (SI) • Students research cell phone plans during computers • Begin teaching about equations 	<ul style="list-style-type: none"> • Warm-Up (SI) • Equations • Discussion with individual groups to see how research is going 	<ul style="list-style-type: none"> • Warm-Up (SI) • Equations continued • Begin talking to students about their presentations • Give students the rubric for presentations 	<ul style="list-style-type: none"> • Warm-Up (SI) • Begin teaching students to graph equations by creating an equation and graphing data. 	<ul style="list-style-type: none"> • Warm-up and Basic Skills Tests (SI) • Graphing data continued

PROJECT WEEK THREE

<ul style="list-style-type: none">• Warm-Up (SI)• Any left over time will be used to allow students to create their graphs.• Prepare letters to be sent home to parents inviting them to watch the presentations.	<ul style="list-style-type: none">• Warm-Up (SI)• Send letters home with students.• Check the graphs to make sure they fit the collected data and equation the students created. Allow them to fix any errors.	<ul style="list-style-type: none">• Warm-Up (SI)• Practice presentations	<ul style="list-style-type: none">• Warm-Up (SI)• Presentations (plan to get them all finished today)	<ul style="list-style-type: none">• Warm-up and Basic Skills Tests (SI)• Presentations (if any)• Exit surveys for students.
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<p style="text-align: center;">Lesson Design:</p> <p style="text-align: center;">Careful construction of lessons to remove barriers and provide assess for all students.</p>	<p style="text-align: center;">Checkpoints:</p> <p style="text-align: center;">Includes</p>
<p>Lessons will include engaging videos and teacher lecture (whole group and small group) in order for students to learn the material needed to successfully complete the project.</p>	<ul style="list-style-type: none"> ✓ Multiple ways to represent information ✓ Alternatives to text ✓ Support provided for text comprehension ✓ Flexible technology-based materials, strategies and tools ✓ Multiple ways for students show what they know ✓ Conspicuous supports for learning new strategies ✓ Mechanism for rapid feedback to learners ✓ Active student-centered methods ✓ Choice, Challenge, Novelty ✓ Connected, relevant learning
<p>After school help will be available for students struggling to comprehend the material.</p>	
<p>Students will have to do a presentation whether they choose to video tape themselves and the class and parents watch the presentation, or do a “live” presentation in front of the class. In addition student graphs can be made on the computer or hand drawn.</p>	
<p>Students will be given formative assessments on the material using the SMART Response system allowing for instant feedback for both the students and the teacher.</p>	
<p>This real-world problem is one all of us struggle with and is the perfect way to show students why we need mathematics in our lives.</p>	

C O L L A B O R A T I O N R U B R I C
(for secondary and upper elementary grades)

	Below Standard	Approaching Standard	At Standard	Above Standard
Responsibility for Oneself	<ul style="list-style-type: none"> ▶ is not prepared and ready to work with the team ▶ does not do project tasks ▶ does not complete tasks on time ▶ does not use feedback from others to improve his/her work 	<ul style="list-style-type: none"> ▶ is sometimes prepared and ready to work with the team ▶ does some project tasks, but needs to be reminded ▶ completes some tasks on time ▶ sometimes uses feedback from others 	<ul style="list-style-type: none"> ▶ is prepared and ready to work with the team; is available for meetings and uses the team's communication system ▶ does what he or she is supposed to do without having to be reminded ▶ completes tasks on time ▶ uses feedback from others to improve his or her work 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ◆ does more than what he or she has to do ◆ asks for additional feedback to improve his or her work, beyond what everyone has been given
Helping the Team	<ul style="list-style-type: none"> ▶ does not help the team solve problems; may cause problems ▶ does not share ideas with other team members ▶ does not give useful feedback to others ▶ does not offer to help others 	<ul style="list-style-type: none"> ▶ cooperates with the team but does not actively help it ▶ makes some effort to share ideas with the team ▶ sometimes gives useful feedback to others ▶ sometimes offers to help others 	<ul style="list-style-type: none"> ▶ helps the team solve problems, manage conflicts, and stay focused and organized ▶ shares ideas that help the team improve its work ▶ gives useful feedback (specific and supportive) to others so they can improve their work ▶ offers to help others do their work if they need it 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ◆ steps in to help the team when another member is absent ◆ encourages others to share ideas, helps to make them clear, and connects them to the team's work ◆ notices if a team member does not understand something and takes action to help
Respect for Others	<ul style="list-style-type: none"> ▶ does not pay attention to what teammates are talking about ▶ does not show respect for teammates (may interrupt, ignore ideas, hurt feelings) 	<ul style="list-style-type: none"> ▶ usually listens to teammates, but not always ▶ is polite and kind to teammates most of the time, but not always 	<ul style="list-style-type: none"> ▶ listens carefully to teammates ▶ is polite and kind to teammates 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ◆ encourages the team to be respectful to each other ◆ recognizes everyone's strengths and encourages the team to use them

P R E S E N T A T I O N R U B R I C

(for secondary and upper elementary grades)

	Below Standard	Approaching Standard	At Standard	Above Standard
Eye Contact & Physical Presence	<ul style="list-style-type: none"> ▶ does not look at audience; reads notes or slides ▶ holds things in hands nervously or keeps hands in pockets ▶ posture does not show confidence; (fidgets, slouches) ▶ clothes are not appropriate for the occasion 	<ul style="list-style-type: none"> ▶ makes some eye contact, or scans the room quickly, but reads notes or slides most of the time ▶ uses a few gestures but they do not look natural, or keeps hands too still to look natural ▶ posture shows some confidence, with only a little fidgeting or nervous movement ▶ some attempt to wear appropriate clothing for the occasion 	<ul style="list-style-type: none"> ▶ keeps eye contact with audience most of the time; only reads notes or slides sometimes ▶ uses hands naturally, making some gestures ▶ confident posture ▶ clothes are appropriate for the occasion 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ✦ keeps eye contact all the time, slowly scanning all of the audience; does not read notes or slides ✦ uses gestures smoothly, naturally to emphasize or illustrate points ✦ moves with purpose
Speaking	<ul style="list-style-type: none"> ▶ mumbles or goes too fast or slow ▶ speaks too softly to be heard ▶ frequently uses "filler" words ("uh, um, so, and, like") ▶ pronounces several words incorrectly ▶ speaks in a style that is not appropriate for the occasion 	<ul style="list-style-type: none"> ▶ speaks clearly some of the time; sometimes too fast or slow ▶ speaks loudly enough for some of the audience to hear, but may speak in a monotone ▶ occasionally uses filler words ▶ pronounces a few words incorrectly ▶ speaks in a style that is appropriate for the occasion, most of the time 	<ul style="list-style-type: none"> ▶ speaks clearly; not too fast or slow ▶ speaks loudly enough for everyone to hear; changes tone to maintain interest ▶ rarely uses filler words ▶ pronounces words correctly ▶ speaks in a style that is appropriate for the occasion 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ✦ adds variety to speaking style (lower or higher volume, change of pace, use of character voices) ✦ uses pauses for dramatic effect or to let ideas sink in
Organization	<ul style="list-style-type: none"> ▶ does not meet requirements for what should be included in the presentation ▶ selects too much or too little information or the wrong kind of information ▶ gets ideas mixed up ▶ time is not used well; the whole presentation, or several parts of it, are too short or too long ▶ does not have an introduction and/or conclusion 	<ul style="list-style-type: none"> ▶ meets most requirements for what should be included in the presentation ▶ sometimes selects too much or too little information, or the wrong kind, about some topics ▶ some ideas are connected, but not all ▶ some parts feel too short or too long; too much or too little time is spent on one topic, slide, or idea ▶ has an introduction and conclusion, but they are not clear or interesting 	<ul style="list-style-type: none"> ▶ meets all requirements for what should be included in the presentation ▶ selects the right amount and kind of information to present ▶ states main idea & moves from one idea to the next clearly, in an order that makes sense ▶ time is well spent; no part feels too short or too long ▶ has a clear and interesting introduction and conclusion 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ✦ has a memorable introduction and conclusion ✦ connects introduction and conclusion (returns to a story, theme, or metaphor) ✦ effectively uses humor, stories, or metaphors
Audio/Visual Aids	<ul style="list-style-type: none"> ▶ does not use aids (pictures, drawings, objects, posters, maps, recordings, slides, other electronic media, etc.) 	<ul style="list-style-type: none"> ▶ uses aids but they do not add much to, and may distract from, the presentation ▶ aids are hard to read or hear, or are messy (writing or graphics are not neat or sound is not clear) ▶ aids are not ready to use and are not smoothly brought into the presentation 	<ul style="list-style-type: none"> ▶ aids add to the presentation ▶ aids are easy to see and/or hear, and are neat ▶ aids are ready to use and included smoothly into the presentation 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ✦ aids are especially creative and/or powerful ✦ shows skill in creating aids and/or using technology ✦ smoothly handles problems with aids and technological glitches, if they occur
Response to Audience Questions	<ul style="list-style-type: none"> ▶ does not address the audience's questions; says little or goes off the topic 	<ul style="list-style-type: none"> ▶ may answer some of the audience's questions, but not clearly and/or completely ▶ may try to answer a challenging question by faking it 	<ul style="list-style-type: none"> ▶ answers audience's questions clearly and completely ▶ when asked a question he or she does not know the answer to, says "I don't know" or explains how the answer could be found 	<p><i>In addition to At Standard criteria:</i></p> <ul style="list-style-type: none"> ✦ answers questions in a way that adds details, examples, or new points to the presentation ✦ smoothly handles questions that are unclear, off the topic, distracting, or challenging