

Project Description: 4th and 5th grade students will use interactive software on a classroom set of 6 iPads to manipulate (unfold) 3D shapes in order to improve their understanding of basic geometric concepts.

Software: *Solids Elementary HD* -- <https://itunes.apple.com/au/app/solids-elementary-hd/id501650786?mt=8>

NCTM Content Standard: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships. (<http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/Geometry/>)

	Project Goals	Indicator (related to this area)	Data to be Collected
STUDENT IMPACT	<p>Students will:</p> <ul style="list-style-type: none"> Identify characteristics of 3-dimensional shapes. Identify the number of faces, vertices, and edges in 3-dimensional shapes. Compare and contrast prisms and pyramids. Apply knowledge of 3-dimensional shapes in order to identify its matching net. Apply knowledge of 3-dimensional shapes in order to identify solid figures in the real world. 	<p>Individually and in small groups, students explore and engage actively with mathematical concepts through manipulation of the interactive geometric models. End of unit teacher-created assessments indicate that students have mastered the curriculum concepts associated with this unit.</p>	<ul style="list-style-type: none"> Classroom observations of students and teachers at work during the unit activities (to observe time on task, engagement, facility of hardware/software use) Teacher interview (re. degree to which students are perceived to be engaging with unit/material) Student interview (re. experience of using hardware/software in this unit) Teacher's assessment data (showing degree to which students have mastered unit material)
TEACHER SKILLS and PEDAGOGY	<p>Teachers will:</p> <ul style="list-style-type: none"> Use unit materials (lesson plans, software, hardware) to support a differentiated, student-centered, and collaborative learning experience for students within 	<p>Teachers facilitate student use of <i>Solids Elementary HD</i> on a classroom set of 6 iPads to establish and conduct a highly differentiated student-centered learning experience for students attempting to meet the grade 4/5 NCTM Geometry standard.</p>	<ul style="list-style-type: none"> Classroom observation of students and teachers at work during the unit activities (to observe degree of cooperation/collaboration, etc.) Teacher interview (re. experience using <i>Solids HD</i> on the iPad with students to meet this curriculum



	this curriculum unit.		objective)
TECHNOLOGY INFRASTRUCUTURE	Students and teachers will have reliable and convenient access to the hardware and software resources necessary to complete this curriculum activity.	Students and teachers are able to reliably access the set of 6 classroom iPads and related software (<i>Solids Elementary HD</i>) in order to accomplish this curriculum activity. Users (students and teachers) report that they were able to successfully log into the devices and start the requisite application in a timely/time-efficient manner at the start of the classroom activity. There are no reported hardware, software, or network “glitches” that delay or hinder use of the iPads/software for this activity.	<ul style="list-style-type: none"> • Classroom observation of students and teachers at work (to confirm functionality of the technology and the degree to which it supports student/teacher use) • Teacher and student interviews (re. ease of use, overall user experience, etc.) • Technology Support Specialist interview (re. extent to which technical issues occurred and/or how they were resolved)



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TEACHER SKILLS and PEDAGOGY	Teachers will:		
TECHNOLOGY INFRASTRUCUTURE			



