TEMPLATE FOR CMaP PROJECT

Each participant who participated in the CMaP workshop signed an agreement to conduct a CMaP project and write up. This template is provided to you as a guide for the CMaP project you agreed to conduct with your students.

Please complete a detailed write-up of your CMaP project using this template. Use the kind of language and detail so other teachers can take your project to conduct in their classrooms. An archive of CMaP projects will be made available for Utah educators.

Send to: Jared Covili, Utah Education Network, 1705 E. Campus Center Dr, MBH 205, Salt Lake City, Utah 84112. jared@uen.org.

Project Title: Age of Trees
Created by: Angie Frabasilio
Class: St George 2013

Project Description	Students will be collecting and analyzing the tree growth as well as prov baseline information for future studies for Sunrise Ridge Intermediate School. Students will find: 1) age of trees on campus by measuring the circumference of the trunk, calculating the diameter of the trunk using fabulous Geometry, and chec average age via logger charts and 2) height of trees using trigonometric ratios and viewing average growth charts. Collecting and providing base information to analyze future growth.
Community Issue or Problem Selected -How project evolved?	Urban trees are an important part of a healthy living environment. They do photosynthesis and provide oxygen for humans, pets, and urban wildlife to breathe. Trees also help with transpiration of moisture in the air, In addition, trees lower the local ambient temperature. They also add aesthetic beauty to our otherwise concrete jungle cities by giving us a touch of green to stimulate our "Nature Intelligence." Custodians at Sunrise Ridge Intermediate may benefit from data on tree growth of some of their on campus trees. In particularly we may be able to identify diseased trees that otherwise have yet to be identified as problematic. Science 7 Grade teachers at Sunrise Ridge Intermediate will also take students out on walking field trips to use a dichotomous key to identify trees. Use of a dichotomous key is part of the 7th grade science core.
Community Partner(s)	Sunrise Ridge Intermediate School

	7th grade math Teachers 7th grade science Teachers Local Nursery Custodians at Sunrise Ridge Intermediate School Principal GIS Mentor of Washington County - Dale Stapely - assist with pinpointi trees on GPS units
Project Objectives	Teach students how to use GPS Unit. Use math and science skills to provide useful information to our school
Core Standards/Objectives	Math : 7.G.4, 7.RP.2, 7.G.6 Science: 7th Grade Science Standard V, Objectives 1,2 and 3
Essential Question(s) -Spatial Issue	What type of trees are on our campus? What are the ages of the trees? What are the height of the trees? Does the height of the trees represent expected growth of the particular species of trees.
Assessments (rubrics, scoring guides)	Students will be graded on the task. How well they match
Project Products	Online Map of School with trees
Project Timeline (include a step by step Procedures)	**Prior student knowledge:** Students must know how to use a Dichotomo key, find the diameter of a circle, and figure out the height of a tree using proportions, how a GPS works or "How does GPS Triangulation" work: http://www.dnatube.com/video/11723/How-Global-Positioning-Systems ork-in-3D or Teaching Info videos: http://gmapk12.wikispaces.com/Instructional+Videos-GPS. **Teacher organizing steps:** Set up GPS Units 1) Set all waypoints in GPS 2) Download Garmin BaseCamp save in Trees folder. 3) Plug in student GPS units (clear all previous waypoints) 4) Download file into student GPS School Field prep: In each tree, put a very small tag that matches the GP identifying number or color. (GPS coordinates are only accurate within feet) Make it a fun game -- like a Geocache. **Student Procedures:** 1 Use your GPS to find your first tree. (Where to, Waypoints, Go.....The Back button to main menu. Go to Compass) for Garmin Etrex 20. 2. Measure/Record the diameter of the tree trunk. 3. Calculate/Record the diameter of the tree. 4. Determine/Record the type of tree, using dichotomous key. 5. Using a loggers guide to determine/record the age of the tree.

Resources Needed	Teacher: Produce a school map with trees on map in [ArcGIS](#) for School. Student Resources: Dichotomous Key Loggers Key Tape measures Calculators GPS Units (two students per GPS)
Skills Required	Prior student knowledge: Students must know how to use a Dichotomous key, find the diameter of a circle, and figure out the height of a tree using proportions, how a GPS works or "How does GPS Triangulation" work: [http://www.dnatube.com/video/11723/How-Global-Positioning-Systems](#) ork-in-3D or Teaching Info videos: [http://gmapk12.wikispaces.com/Instructional+Videos-GPS](#).
Project Team Member Roles	**Students:** Collect Data: 1) age of trees on campus by measuring the circumference of the trunk, calculating the diameter of the trunk using fabulous Geometry, and check average age via logger charts and 2) height of trees using trigonometric ratios and viewing average growth charts. **Partner(s):** 7th grade math Teachers - charts for figuring out diameter / height of tre 7th grade science Teachers - developing dichotomous keys, Local Nursery - logging charts, average tree growth for species on camp Custodians at Sunrise Ridge Intermediate School - project approval Principal - Help with identifying trees. GIS Mentor of Washington County - Dale Stapely - assist with pinpointi trees on GPS units
Celebration/Presentation	Students present and compare findings
Project Evaluation	Finished worksheet Teacher informal observation during project Accuracy of findings
Project Bibliography	[http://gmapk12.wikispaces.com/Instructional+Videos-GPS](#) [http://www.dnatube.com/video/11723/How-Global-Positioning-Systems](#) ork-in-3D [http://education.maps.arcgis.com/home/](#) [http://www.garmin.com/en-US/shop/downloads/basecamp](#)
Plans for Future CMaP	Repeat with Science teacher for greater retention.

Activities	