

Grade 4 STEAM Scope & Sequence

(Grade 4 curriculum is still being developed. This document is being revised.)

	<u>Unit 1</u> CS+Community	<u>Unit 2</u> The Great CA Shakeout	<u>Unit 3</u> Energy To Change	<u>Unit 4</u> CS+Earth	Unit 5 Tenacious Tidepools
Estimated Time	16 - 24 hours		9 lessons	16 - 24 hours	
NGSS Performance Expectations	3-5-ETS1-1 3-5 ETS1-2 3-5 ETS1-3	4-ESS3-2	4-PS3-1 4-PS3-2 4-PS3-3 4-PS3-4	3-ESS2-1 3-ESS2-2 4-PS4-3	4-PS4-1 4-PS4-2 4-LS1-1 4-ESS3-1 4-ESS3-2
Computer Science Standards	CSTA and CS Standards in CS+Community			CSTA and CS Standards in CS+Earth	
SEP (DO) Science and Engineering Practices	SEP1 SEP2 SEP3 SEP5	SEP1 SEP2 SEP4 SEP6	SEP1 SEP2 SEP3 SEP4 SEP6 SEP8	SEP1 SEP2 SEP3 SEP4 SEP4 SEP8	SEP6
DCI (KNOW) Disciplinary Core Ideas	ETS1.A ETS1.B ETS1.C	ESS3.B PS4.A ETS1.B	PS3.A PS3.B PS3.C PS3.D	ETS1.A ETS1.B ETS1.C	PS4.A PS4.B LS1.A
CCC (THINK & LINK) Crosscutting Concepts	CCC1 CCC2	CCC2 CCC5	CCC2 CCC4 CCC5	CCC1 CCC2 CCC3	CCC4

Anchor Phenomenon	Apps and computer programs are always updating.	<p>A 10-story wood building designed on a shake table doesn't fall. (10-story wood building passes earthquake test)</p> 	<p>Energy is transferred and transformed through different parts of a chain reaction machine. (OK GO Chain Reaction Machine)</p> 	Computer models represent what we see on earth.	A tidepool is a unique and constantly changing environment that is home to a diverse species of plants and animals.
Essential Question	How can I use computer science to share what's important to me?	What can we do to reduce the impacts of an earthquake?	How can we use energy to solve problems?	How can we model earth systems using computer science?	Why should we protect tidepools?
Final Product	Share a Scratch Project About Your Interests and How They Connect to Computer Science	Design and test an earthquake safe building.	Rube Goldberg Community Chain Reaction	Scratch Game for an Audience	Students create a community guide to learn about and protect the tidepools.
*Ethnic Studies: 5Ss and 7Cs	Stories Celebrate Center Connect	Self Stories Center Critique Cultivate	Systems Critique	Systems Connect	Systems Connect
Math	Make sense of problems and persevere in solving them. Look for and express regularity in repeated reasoning.		4.MD.B.4		
VAPA	Visual Arts 2.0 Creative Expression 5.0 Connections, Relationships, Applications		Visual Arts 5.0 Connections, Relationships, Applications	Visual Arts 2.0 Creative Expression 5.0 Connections, Relationships, Applications	

	Theatre 2.0 Creative Expression				
Community Connection	School community	CA Shakeout Community School Community UCSD Shake Table Visit	Energy Innovation Center Students bring their ideas out to the community to prototype and test.		Local tidepools
Career Connection	Computer Scientist (Computer Science connection to ALL careers)	Seismologist Building engineer Geologist	Rollercoaster Engineers Automotive Safety Engineer Musician Artist Activist	Computer Scientist (Computer Science connection to ALL careers)	State Park Interpreter Naturalist Marine Biologist
Community Partners	UCSD	UCSD	Energy Coalition	UCSD	Cabrillo National Monument Birch Aquarium
Engineering/ Design Thinking	Design coding projects for your community.	Students learn how to prepare for earthquakes and design a solution in response to a natural disaster.	Design a Rube Goldberg Chain Reaction Machine. Create a Community Chain Reaction by using your energy to solve a problem in the community.	Design a game for your community.	Design a wave simulation of the tidepool environment. Design a model of a tidepool animal internal/external structure.
Exhibition	Share Coding projects.	Share their solutions to reduce the impacts of earthquakes and tsunamis with the community..	Students share their change ideas to an authentic audience and their learning about the project in an Exhibition of Learning.	Share games	Students become Tidepool Interpreters at their local tidepool and share their guide.
Authentic Audience	Family and School Community	School Community	Family and Classroom Community	Classroom Community	Local Community

*Ethnic Studies 5S's: Stories, Self, Systems, Solidarity, Social Movements

7C's: Cultivate, Celebrate, Center, Critique, Challenge, Connect, Conceptualize

HSS:

Students explain the economic, social, and political life in California from the establishment of the Bear Flag Republic through the Mexican-American War, the Gold Rush, and the granting of statehood.

Analyze the effects of the Gold Rush on settlements, daily life, politics, and the physical environment (e.g., using biographies of John Sutter, Mariano Guadalupe Vallejo, Louise Clapp).