PROJECT OVERVIEW

Name of Project	Do Salmon Use Google Maps?		**Duration:** 15-30 contact hours
Subject/Course		**Teacher(s):** Faith Forshee	**Grade Level:** 4th
Other subject areas to be included, if any			

Project Idea Summary of the issue, challenge, investigation, scenario, or problem:	Animals have been documented to use different senses as homing devices, such as scent and vision. However, some animals have been known to also use magnetoreception as a homing mechanism. It is not known how or to what extent salmon in particular use magnetoreception to find their natal stream for spawning. However, our goal is for students to have a clear idea of ways salmon find their way to their birth stream, and a beginning opinion whether wave energy buoys (electro-magnetically powered wave energy devices) will have an effect on fish species life cycle and migration.
Driving Question	How do salmon find their way back to their natal streams to spawn? If salmon use "magnetoreception" as a homing mechanism, how might wave energy devices in the ocean affect the salmon life cycle?
Content Standards to be taught and assessed	4.2L.1 Organisms and their environment, 4. 3 Scientific Inquiry, 4.3S.1-3 Designing Scientific Investigation, Summarizing and Explaining, 4MD2 Solving word problems, 4MD4 Using data

21st Century Skills to be taught and assessed	☒ Critical Thinking/Problem Solving	☒ Communication (Oral Presentation)	☒ Collaboration	☒ Tech Literacy
	☐ Other :			

Major Products	**Group**	Students worked in teams to research, compile data, discuss, and create products. Teams created presentations, website, illustrations, and written copy.
	Individual	Students researched different aspects on their own, and created their own written text explaining their learning. Students also did individual projects to add to their learning.

Presentation Audience

- ☒ Class
- ☐ School
- ☐ Admin./Staff
- ☐ Other :
- ☒ Community
- ☐ Experts
- ☒ Online

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Entry Event to launch inquiry, engage students		Entry event was a salmon dissection that introduced students to the anatomy of a salmon. Students were able to independently dissect and study the different parts of a salmon that might aid/encourage their migration to their birth streams.		
Assessments	**Formative Assessments** (During Project)	☐ Quizzes/Tests	☐ Journal/Learning Log	☒ Preliminary Plans/Outlines/Prototypes
		☒ Rough Drafts	☐ Online Tutorial(s)	☒ Practice Presentations
		☐ Notes	☐ Checklists	☐ Content Maps
		☐ Other :		
	Summative Assessments (End of Project)	☒ Oral Presentation, with rubric	☐ Multiple Choice/Short Answer Test	☐ Written Product, with rubric
		☐ Peer Evaluation	☐ Self-Evaluation	☒ Other Product(s), with rubric Website, slide shows, art products
Resources Needed	**On-site people, facilities**	Need space to create projects, complete a dissection, space to move around and collaborate.		
	Equipment	We used a set of ipad minis to conduct research, record our learning, take pictures/video, share our learning, and more. We also used probes at a Research Hatchery to test the conditions of a stream where spawning was actually taking place.		
	Materials	We used presentation boards for a public presentation. We used art paper for black-line illustrations of salmon.		
	Community Resources	We had the support of a Hatchery Research Center to provide an in-class dissection and a field trip to study fish in the field and to see first hand the research being done on the effects of electro-magnetic fields on salmon.		
Reflection Methods to look back on content and process	**Group**	☐ Focus Group	☒ Whole-Class Discussion	☐ Fishbowl Discussion
		☐ Other :		
	Individual	☒ Journal/Learning Log	☐ Survey	☒ Open-Ended Questions
		☐ Other :		