**Unit Title: Phenology of California Poppy Grade level: 3-5**

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| **Lesson # 1 Title: What is a season?** | **Number of Minutes: 30-60** |
| Mathematical purpose (if applicable): | Scientific Purpose: Help kids notice how temperature and precipitation changes throughout the seasons. Help them differentiate between how plants respond to season, climate and weather. |
| Materials needed:  thermometer, rain gauge, simple datasheet \*Simple “weather station” datasheet for Ashley to design. Probably best to have a separate form than the observation datasheet? | Academic vocabulary:  Photoperiod, precipitation, season, climate, weather, solstice, equinox, spring, summer, fall and winter. |
| Common Core Standards (copy and paste): Michael will do | Next Generation Science Standards (copy and paste): Michael will do |
| When students are finished they will understand:  How to record temperature, and how to measure rain fall. They will understand how these variables typically change throughout the seasons. | What are teacher questions or prompts?  What makes a season a season? What are the four seasons like, here, where we live? What season is it now? What do you think of when you think of summer? Anyone know what a solstice or equinox is? Where do plants get their energy? What do many plants make in the spring? (flowers) What do many plants make in the summer and fall? (fruit) |
| What are questions you anticipate students will have? Ashley | What are misconceptions students might have?  All plants do the same thing at the same time every season. Seasons have the same traits everywhere on the globe. |
| General outline of the lesson:  Ashley will provide an outline. Ashley, it might be helpful to watch this 8 minute video produced by Jack Murphy, an HSU lecturer. <https://www.youtube.com/watch?v=3tw2aNWW2Xc&feature=youtu.be> He has college students measure temperature, rainfall and do shadow measurements. The shadow measurements are SO tempting as they detect up to a cm difference per week near the solstice. However, with our age group, the shadow measurements might be too hard and prone to user error between kids.  Many teachers like to assign daily jobs to students. Taking temperature (high & low) and rainfall measurements could a weekly with a different kid doing it each week. I worry about this lesson because I don’t have personal experience doing it with kids. Because of the Spanish at Fuente and attempting a multi-grade project I bailed on doing this there. The intention of this lesson is to “set the stage” for phenology and get kids thinking about changes in the seasons. The hope is to keep it SUPER simple so it doesn’t take over, but rather informs and preps the kids for all the other lessons. I think the small list of suggested vocabulary will help you design an effective outline. It would be good if the outline described to the teachers exactly what to do and how to do it. Jack does this pretty well in his little 8 minute lecture—his lecture just needs to be taken down to the elementary level and into an outline form. | |

Supplemental files/resources will follow