Why Is Our Corn Changing?

Lesson Routine	Questions	Phenomena / Problems	What we figured out
L1 Anchoring phenomena		 and students' prior experiences	A decoration (harvest corn) that our teacher brought to class was accidently left outside and got wet. We wondered if it was ruined, whether it was real corn (like the corn we eat), and if anything would happen to it. We had some ideas for some investigations we wanted to pursue.
L2 Investigation	What is this thing made of?		This decoration (harvest corn) had some structures that are similar to the corn we eat (kernels and a cob), and some differences (color and hardness).
L3 Investigation	What happened to the wet harvest corn?		Little things came out of the corn. The kernels became plumper and softer.
L4 Problematizing	Now what happened to our wet harvest corn?		More stuff grew out of the corn, and the old stuff got longer. The water level went down. Some of us thought things were growing from the kernels, but some of us thought they were growing from the cob.
Investigation	Are these little things growing from the kernels or the cob?	Same as start of L4 above	We planted some kernels in their own container and planted a piece of cob in its own container to investigate this question.
Putting pieces together	What did we figure out by planting the kernels and the cob?		The corn cob didn't sprout, but each kernel did. We decided each of the kernels must be a seed. Our corn has many separate corn plants growing from it.

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Investigation	Does the seed have something inside of it that is helping the plant grow?		Wet seeds, not dry ones, have a small structure inside them that is similar to the roots we've seen on other plants. We wondered whether we would find similar structures in wet seeds from other plants.
Investigation	Do wet seeds from other plants have similar structures inside of them?		Wet seeds from other plants also have similar structures in them. We decided that these structures are the start of what is going to sprout into a baby plant.
L5 Investigation	How much did the wet harvest corn change since last time?		The white and green parts looked like they had grown a lot. In order to figure out how much it had grown, we decided we needed to measure these parts and compare our measurements over time.
L6 Problematizing	Why are different parts growing in different directions?		The green parts looked like leaves and they bent toward the light. We wondered if corn needs light and water to grow, and if leaves help it get light and roots help it get water.
Investigation	Does corn need light in order to keep growing?	Same as start of L6 above	We put some plants in their own container with water in the dark and kept some others in the light.
Putting pieces together	What did we figure out by putting some in the light vs. the dark?		The plants in the dark shriveled and turned yellow and brown, but the plants in the light did not. The plants in the dark eventually stopped growing but the ones in the light did not. We decided plants need light to keep growing, and their leaves help them get light.
L7 Putting pieces together	What have we noticed and what are we wondering so far?	Phenomena from L1 through L6	Lots of growth and change took place in the leaves, roots, and stems of our plants. We kept adding water to the bin. We wondered if the plants would keep growing.

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L8 Problematizing	How did the harvest corn change?		The water that our corn was sitting in got stinky, cloudy, and gray. We thought something might be wrong in the water, and it might affect plant growth, but we weren't sure, so we decided to test this.
Investigation	Where does the plant grow best?	Same as start of L7 above	We put some plants in their own container with the dirty water, some with fresh water, some in dirt and water, and some in dirt with no water.
Putting pieces together	What did we figure out by putting the plant in different places?		Plants can only grow in places where there is water that their roots can reach. Plants grow more upright when their roots are in soil, but don't need soil to keep growing.
L9 Problematizing	What else do plants need to grow?	Previous phenomena L1 through L7	Our class had lots of questions we still wanted to investigate. Each group chose one to pursue. We created our own investigation plans and set up the investigations.
Investigation	How much did my plants grow?		We carried out our investigations, collecting data over the next couple weeks. We wrote up summarizes of our discoveries and prepared to share them with others.
Putting pieces together	What has our class figured out from all of our investigations?	All previous phenomena in L1 through L9	Plants need light and water to grow. The leaves and roots of the plant help it get these things. When given water, seeds develop structures inside them that eventually can grow into parts of a plant. There are lots of other things in the surroundings around the plant that also affect the growth of plants.

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