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| Month | **Stem** Challenge | Unit |
| August | [Animals and Engineering](https://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_bio/cub_bio_lesson05.xml) | * **Paper** * **Pencil** * **Markers or colored pencils** * **Ruler**   **s NestArtifact sifterChallengers** |
| September | [Biomimicry Natural Designs](https://www.teachengineering.org/view_activity.php?url=collection/cub_/activities/cub_bio/cub_bio_lesson05_activity1.xml) | * **Paper** * **Pencil** * **Markers or colored pencils** * **Ruler** |
| October | [All About Water](https://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_drink/cub_drink_lesson01.xml) | **Each group needs:**   * **top half of a two-liter plastic bottle** * **coffee filter** * **zip-lock sandwich bag** * **2 plastic cups** * **[A Matter of Leaching Worksheet](https://www.teachengineering.org/collection/cub_/activities/cub_drink/cub_drink_lesson01_activity1_worksheet_tedl_mhf.pdf" \t "_blank), one per student**   **To share with the entire class:**   * **sand (approximately 5-10 pounds)** * **gravel (approximately 5-10 pounds)** * **cotton balls** * **screening (one to two 4"x4" squares per group)** * **activated charcoal or carbon (optional, can be purchased on amazon.com or at some garden centers)** * **garden soil, not potting soil (one handful per group)** * **permanent marker** |
| November | [**Nova First Flower**](http://www.pbs.org/wgbh/nova/education/activities/3405_flower.html) | * copy of the "Extracting DNA from Bananas" student handout ([PDF](http://www.pbs.org/wgbh/nova/teachers/activities/pdf/3405_flower_01.pdf) or [HTML](http://www.pbs.org/wgbh/nova/teachers/activities/3405_flower_01.html)) * 1 large banana * 1 1/4 cups distilled water * 1 teaspoon clear detergent soap containing EDTA * 1/4 teaspoon table salt * 15 ml isopropyl alcohol (91 percent) * blender * 2 16-ounce plastic cups * 1 plastic spoon * 1 set of measuring spoons * 1-cup measuring cup * 1 #4 cone paper coffee filter * 1 rubber band * 2 250 ml beakers * 1 plastic pipette or eyedropper * 1 thin glass rod |
| January | Engineer a Building to Withstand a Earthquake | **Constructive and Deconstructive Processes** |
| February |  | **Whole as Sum of its Parts** |
| March | Rocket Lego Car | **Physical and Chemical Change** |
| April | [The Electric and Magnetic Personalities of Mr. Maxwell](https://www.teachengineering.org/view_activity.php?url=collection/usf_/activities/usf_maxwell/usf_maxwell_lesson01_activity2.xml) | Each group needs:   * plastic drinking straw * high-gauge wire (28, 30 or 32 gauge), 2 ft (.6 m) * iron nail * loose staples * 9V battery * alligator clips * scissors * wire strippers * [The Good, the Bad and the Electromagnet Worksheet](https://www.teachengineering.org/collection/usf_/activities/usf_maxwell/usf_maxwell_lesson01_activity2_worksheet_v2_tedl_dwc.pdf), one per student * For the post-activity assessment: paper clips, and more wire and batteries |

