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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**

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| 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**
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| 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%22%20%5Ct%20%22_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**
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| 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
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| 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
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