

Standard: K-2-ETS1 Engineering Design

<https://www.nextgenscience.org/dci-arrangement/k-2-ets1-engineering-design>

Performance Expectation:

Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Dimension	Connections to Classroom Activity
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Science and Engineering Practices	
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Developing and Using Models *Develop a simple model based on evidence to represent a proposed object or tool  Constructing Explanations and Designing Solutions *Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem	Students design and build an enrichment toy that uses sound.
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Disciplinary Core Ideas	
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ETS1.B: Developing Possible Solutions *Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solution to other people.  PS4.A Wave Properties *Sound can make matter vibrate, and vibrating matter can make sound	Students build and present their designs and during the presentation are explicit in describing their choice of material and what sense that helps stimulate. They also describe what produces sound and how that sound is produced. Students then debrief on how the designs are similar and different.
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Crosscutting Concept	
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Cause and Effect * Events have causes that generate observable patterns.	Students test various materials to see how they can be used to produce the desired attribute of sound within their toy design. In their presentations, students tell about how sound is produced in their toy.
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