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| cs4k5Italic  **Grade 3**  **Box of Rhythm** | |
| **Description:** | Students will:  Paint a shape.  Make a script with forward and bounce tiles.  Record a short sound.  Save the sound and add it to the bounce tile in the script.  Copy the shape, change its scale factor, and color.  Use a playfield to limit the motion.  Experiment with different lengths and widths for the playfield.  Experiment with forward by values to control the polyrhythm.  Experiment with starting location of shapes to control the polyrhythm.  Experiment to control the location so all three shapes never touch simultaneously, or so they touch simultaneously every cycle.  Add a title.  Add a flap if additional information is needed. |
| **Project View** | box.png |
| **Subject:** | Mathematics, Music |
| **Etoys Quick Guides** | Click the question mark in Etoys to open the set of interactive tutorials for basic tools and techniques. |
| **Vocabulary:** | Patterns, rhythm, polyrhythm, multiply, divide, x and y locations, forward by, heading. ratios, scale factors |
| **Lesson 1:**  Script Tiles: Bounce Motion  Paint Tools: Brushes  Script Tiles: Forward and Turn  Supplies: Sound Recorder  Navigator Bar: Keep Find Project | A microphone is needed for this project or, if unavailable, use the set of sounds that are in the bounce tile.  Paint a circle.  Make a script with forward by and bounce tiles in it.  Get a Sound Recorder from Supplies.  There will be noise.  Record a short sound. The example project uses “tch” spoken in a voiceless rhythm of three sets of sixteenth notes and one quarter note at the end. Student ideas will vary. You might ask them to use vocabulary from a classroom topic. Hearing a word over and over again makes deep memory.  Experiment with different sounds and save the best to add to the script.  Keep the project. Call it nameRhythm. E.g. KateRhythm. |
| **Lesson 2:**  Halo: Size, Color, Copy  Script Tiles: Scale Factor | Get a playfield from Supplies and put the circle in it. Use playfield’s Viewer category fill and border to change the color.  Experiment with the size of the playfield to control the repetition of the rhythm.  Experiment with the circle’s forward speed to control repetition of the rhythm. One circle moving at the right speed inside the playfield can make a polyrhythm. That is, one loop of the sound is still playing when the second loop begins. Listen.  Make copies of the circle, change the scale factor, forward speed and heading to make an interesting polyrhythm.  Multiply the speed of one to make the speed of another. Multiply its speed to make the speed of the third circle. Listen.  Experiment to control size and speed so that one circle’s sound is repeating twice as often as another’s sound.  Use the scale factor to make exact size ratios between the circles.  Give students time to experiment.  Give students time to try other student’s projects.  Give students time to revise their project.  Keep the project. |
| **Standards:** | Common Core Standards  Mathematics: 3.OA.3.7; 3.NF.1.3.b  Bloom’s Taxonomy/Cognitive Domain:  Knowledge: describes, selects  Comprehension: estimates  Application: constructs, discovers  Analysis: analyzes, experiments  Synthesis: categorizes, explains  Evaluation: compares, reviews  NETS:  1. a, b, c  4. a, b, c, d |
| **Resources:** | Etoys Help Quick Guides: always available in Etoys. Open Etoys and click the question mark to open a set of interactive tutorials of basic tools and techniques.  [www.etoysillinois.org](http://www.etoysillinois.org) projects, lesson plans, software download  [www.mste.Illinois.org](http://www.mste.Illinois.org) more math, science, and technology resources  [www.corestandards.org](http://www.corestandards.org) Common Core Standards  [www.squeakland.org](http://www.squeakland.org) software and Etoys projects  [www.nctm.org](http://www.nctm.org)Standards and Focal Points for each grade level |
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