

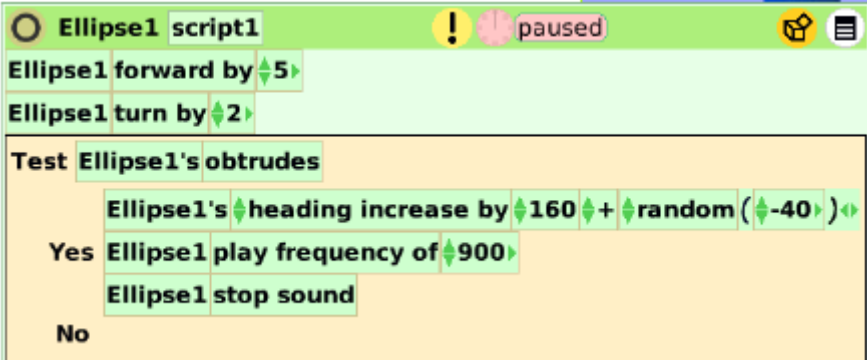
EtoysIllinois
 EtoysCS4K5
Grade 4
Chance Hz

Description: Students will:
 Modify the size and color of an ellipse from Supplies
 Make a script with the forward and turn tiles.
 Change the heading with the conditional statement: if obtrudes.
 Use increase by a random number in the heading tile.
 Use the Sound tiles to assign a frequency to the ellipse.
 Make copies of the ellipse modify their color, size, and script.
 Use a playfield to limit the motion.
 Experiment with different lengths and widths for the playfield.
 Experiment with forward by values to control the polyphony.
 Experiment with starting location of shapes to control the polyphony.
 Experiment to control the location so the shapes never touch simultaneously, or so they do touch simultaneously every cycle.
 Add a title.
 Add a flap if additional information is needed.

Project View



Subject: Mathematics, Music
Etoys Quick Click the question mark in Etoys to open the set of interactive tutorials

Guides	for basic tools and techniques.
Vocabulary:	Obtrudes, patterns, rhythm, polyphony, hertz, Hz, multiply, divide, x and y locations, forward by, heading. ratios, scale factors
<p>Lesson 1: Halo: Color Properties Sheet</p> <p>Script Tiles: Forward and Turn</p> <p>Script Tiles: Tests</p> <p>Script Tiles: Sound Category</p> <p>Script Tiles: Heading</p> <p>Navigator Bar: Keep Find Project</p>	<p>Get an ellipse from Supplies. Modify the color using its fill and border tiles.</p> <p>Make a script with forward by and bounce tiles in it.</p> <p>Add a conditional statement.</p> <p>Use the frequencies chart below to choose pitches.</p>  <p>Make copies of the ellipse and change their properties and scripts. Give students time to experiment.</p> <p>There will be noise.</p> <p>Keep the project. Call it nameHz. E.g. KateHz</p>
Lesson 2:	<p>Get a playfield from Supplies. Use playfield's Viewer category fill and border to change the color.</p> <p>Put the ellipses in it. Students should make as many copies and modify them as they want for their music.</p> <p>Experiment with the size of the playfield to control the polyphony.</p> <p>Experiment forward speeds to control the rhythm. Listen.</p> <p>Multiply the speed of one ellipse to make the speed of another. Multiply</p>

<p>Halo: Size, Color, Copy</p> <p>Script Tiles: Scale Factor</p>	<p>its speed to make the speed of a third ellipse. Experiment with ratios. Listen.</p> <p>Experiment to control size and speed so that one circle's pitch is repeating twice as often as another's pitch. Or make one pitch the double of another. Listen.</p> <p>Use the scale factor to make exact size ratios between the ellipses sizes.</p> <p>Give students time to experiment.</p> <p>Give students time to try other student's projects.</p> <p>Give students time to revise their project.</p> <p>Keep the project.</p>
<p>Standards:</p>	<p>Common Core Standards Mathematics: 4.OA.5; 4.NBT.5; 4.NF.2;4.MD.5.a,b,6.7;4.G.1.3</p> <p>Bloom's Taxonomy/Cognitive Domain: Knowledge: describes, selects Comprehension: estimates Application: constructs, discovers Analysis: analyzes, experiments Synthesis: categorizes, explains Evaluation: compares, reviews</p> <p>NETS: 1. a, b, c 4. a, b, c, d</p>
<p>Resources:</p>	<p>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.</p> <p>www.etoysillinois.org projects, lesson plans, software download www.mste.Illinois.org more math, science, and technology resources www.corestandards.org Common Core Standards www.squeakland.org software and Etoys projects www.nctm.org Standards and Focal Points for each grade level</p>
<p>kh February 2011</p>	

Pitch to Frequency Mappings

Below is a table of pitch frequencies in equal temperament, based on A4 = 440 Hz to the nearest Hertz (middle C = C4).

	0	1	2	3	4	5	6	7	8								
C	16	C	33	C	65	C	131	C	262	C	523	C	1047	C	2093	C	4186
C#	17	C#	35	C#	69	C#	139	C#	278	C#	554	C#	1109	C#	2218	C#	4435
D	18	D	37	D	73	D	147	D	294	D	587	D	1175	D	2349	D	4699
D#	20	D#	39	D#	78	D#	156	D#	311	D#	622	D#	1245	D#	2489	D#	4978
E	21	E	41	E	82	E	165	E	330	E	659	E	1319	E	2637	E	5274
F	22	F	44	F	87	F	175	F	349	F	699	F	1397	F	2794	F	5588
F#	23	F#	46	F#	93	F#	185	F#	370	F#	740	F#	1475	F#	2960	F#	5920
G	25	G	49	G	98	G	196	G	392	G	784	G	1568	G	3136	G	6272
G#	26	G#	52	G#	104	G#	208	G#	415	G#	831	G#	1661	G#	3322	G#	6645
A	28	A	55	A	110	A	220	A	440	A	880	A	1760	A	3520	A	7040
A#	29	A#	58	A#	117	A#	233	A#	466	A#	932	A#	1865	A#	3729	A#	7459
B	31	B	62	B	124	B	247	B	494	B	988	B	1976	B	3951	B	7902

<http://peabody.sapp.org/class/st2/lab/notehz/>