GeoGebra Tutorial: **Rolling Two Dices**

No.	Toolbar Icon	Command	Remarks
1.	a = 2	`a=Slider(0,6,1)`	
2.	A	`A=(0,0)`	
3.		Select the "image" tool. Click on A, select "dado-1.png"*. The image is inserted. In "Position" of "Object Properties", set Corner1 and Corner2 to be A and A+(1,0) respectively. Delete any extraneous points. In "Advanced" of "Object Properties", set "Condition to Show Object" to be "a==1".	
4.		Repeat the above step for "dado-2.png" to "dado-6.png" so that when the value of a is changed by the slider, the corresponding dice face is shown. No picture is shown when a equals zero.	The six pictures are named "pic1" to "pic6". See Figure 1.
5.	a = 2	`b=Slider(0,6,1)`	
6.	A	`B=(1.2,0)`	
7.		`pic1'=Translate(pic1,Vector(A,B))` In "Position" of "Object Properties", set Corner1 and Corner2 to be B and B+(1,0) respectively. Delete any extraneous points. In "Advanced" of "Object Properties", set "Condition to Show Object" to be "b==1".	The six pictures are named "pic1' " to "pic6' ". See Figure 2.
8.		Repeat the above step for pic2 to pic6 so that when the value of b is changed by the slider, the corresponding dice face is shown. No picture is shown when both a and b equal zero.	
9.		Hide the two points and two sliders.	
10.		Open Spreadsheet view. Enter "Freq" in cell A1 and "R. Freq" in cell B1.	
11.		Enter some integers in cells A2 to A12, say, A2=8, A3=5, etc.	
12.		`n=Sum(A2:A12)`	
13.		Enter "=A2/n" in cell B2. Auto-fill B3 to B12 so that B3 equals A3/n, etc	See Figure 3.
14.		`maxFreq=1`	
15.		`maxY=1`	

No.	Toolbar Icon	Command	Remarks
16.		`hist=Histogram(Sequence(12)+0.5,B2:B12)`	Color: red Hide label. Show the histogram in Graphics 2.

17.		`listFreq`
		`=Sequence(If(Element(A2:A12,i)>0,`
		`Text(Element(A2:A12,i),(i+0.6,`
		`Element(B2:B12,i)+maxY/20)),Text("",`
		`(i+0.6,maxY/2))),i,1,11)`
			Color: black
			Show the text in Graphics 2.

18.	OK	Insert a button named `buttonAdjustScale`.
		Set the On Click GeoGebra script:
		`SetValue(maxFreq,Max(B2:B12))`
		`SetValue(maxY,If(maxFreq<0.25,0.3,If(ma`
		`xFreq<0.5,0.6,1.2)))`
		`SetActiveView(2)`
		`ZoomIn(-1,-maxY/10,14.5,maxY)`
			Press the button once.
			See Figure 4.

19.		Enter "Global Javascript" (see Figure 5): ```function ggbOnInit() {\n ggbApplet.evalCommand("RunClickScript(buttonAdjustScale)");\n}\n\nfunction rollDice(n) {\n var i=0; var d1=0; var d2=0; var cell="";\n for (i=1; i<=n; i++) {\n d1= Math.floor((Math.random()*6)+1);\n ggbApplet.setValue("a",d1);\n d2= Math.floor((Math.random()*6)+1);\n ggbApplet.setValue("b",d2);\n cell="A"+(d1+d2).toString();\n ggbApplet.setValue(cell,ggbApplet.getValue(cell)+1);\n }\n}\n\nfunction rollDiceAndAdjust(n) {\n rollDice(n);\n ggbApplet.evalCommand("RunClickScript(buttonAdjustScale)");\n}\n\nvar autoRoll=false;\nvar myTimer;```	
20.	OK	Insert a button named `button1`. Set the On Click JavaScript: `rollDiceAndAdjust(1);`	Caption: Roll once See Figure 6.
21.	OK	Insert a button named `button10`. Set the On Click JavaScript: `rollDiceAndAdjust(10);`	Caption: Roll 10 times

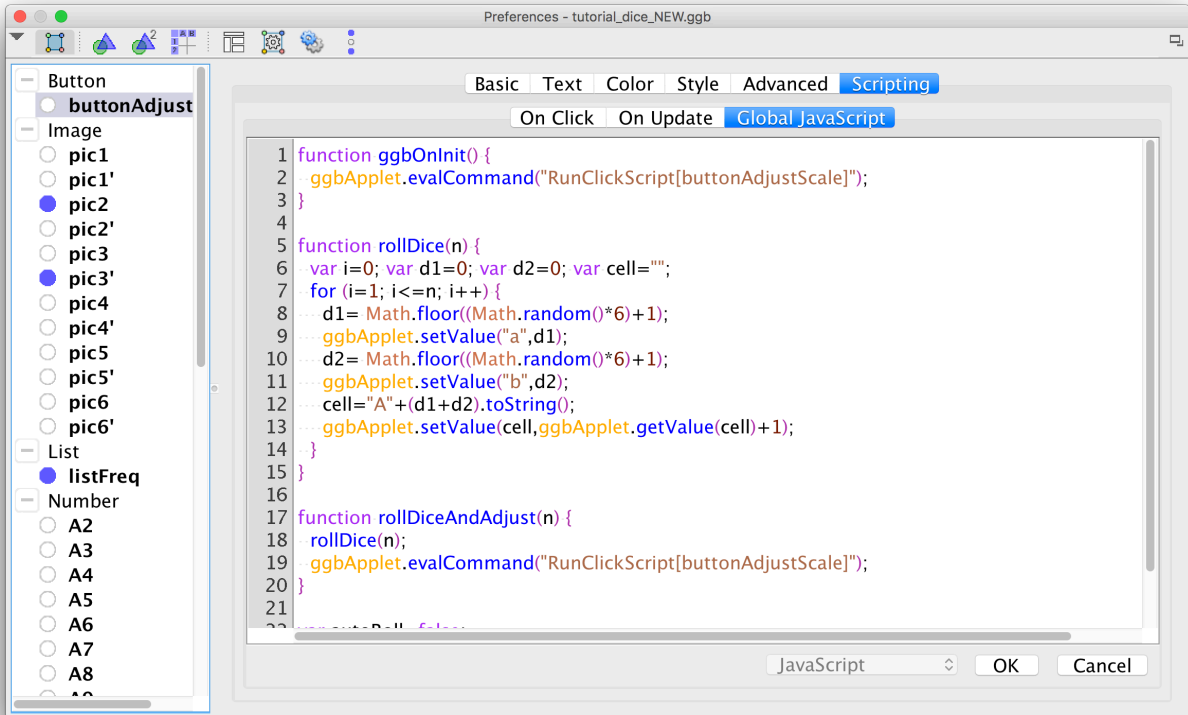| No.	Toolbar Icon	Command	Remarks
22.	OK	Insert a button named `button100`. Set the On Click JavaScript: `rollDiceAndAdjust(100);`	Caption: Roll 100 times

23.	OK	Insert a button named `buttonReset`.
		Set the On Click GeoGebra script:
		`SetValue(a,0)`
		`SetValue(b,0)`
		`SetValue(A2,0)`
		`SetValue(A3,0)`
		`SetValue(A4,0)`
		`SetValue(A5,0)`
		`SetValue(A6,0)`
		`SetValue(A7,0)`
		`SetValue(A8,0)`
		`SetValue(A9,0)`
		`SetValue(A10,0)`
		`SetValue(A11,0)`
		`SetValue(A12,0)`	

24.		`text1="Number of rolls = "+n`	
25.		Test the four buttons. Hide buttonAdjustScale. Hide the grid and axes of Graphics (1). Set "Positive Direction Only" for axes in Graphics 2. Label x-Axis "Sum" and y-Axis "Relative Frequency". Set the "Distance" of x-Axis be 1 in Graphics 2.	See Figure 7.

26.	OK	Insert a button named `buttonAuto` with caption "Auto roll".
		Set the On Click JavaScript:
		
		`if (autoRoll) {`
		`  clearInterval(myTimer);`
		`  autoRoll=false;`
		`  ggbApplet.setCaption("buttonAuto","Auto roll");`
		`} else {`
		
		`myTimer=setInterval(function(){ rollDiceAndAdjust(1) },1000);`
		`  autoRoll=true;`
		`  ggbApplet.setCaption("buttonAuto","Stop");`
		`}`	

27.		Press `Ctrl+Shift+D` to toggle "Selection Allowed" for all objects except points and sliders. Upload the file to GeoGebraTube to test the "Auto Roll" button. See Figure 8.	
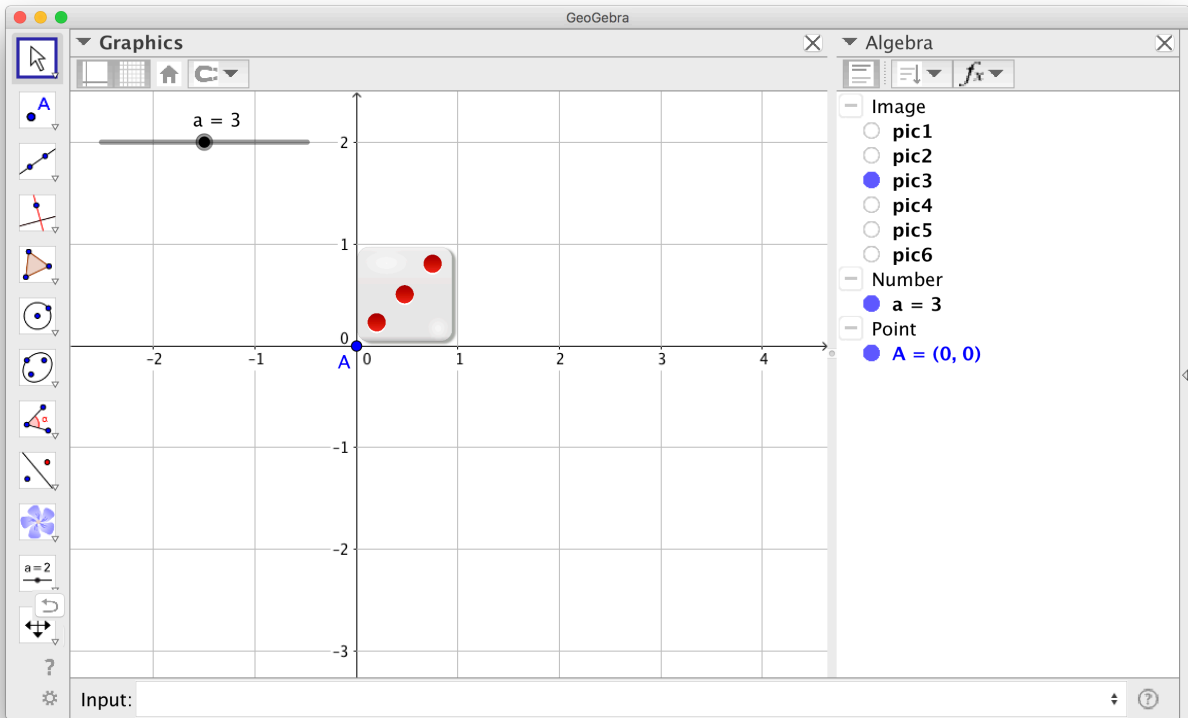
Figure 1
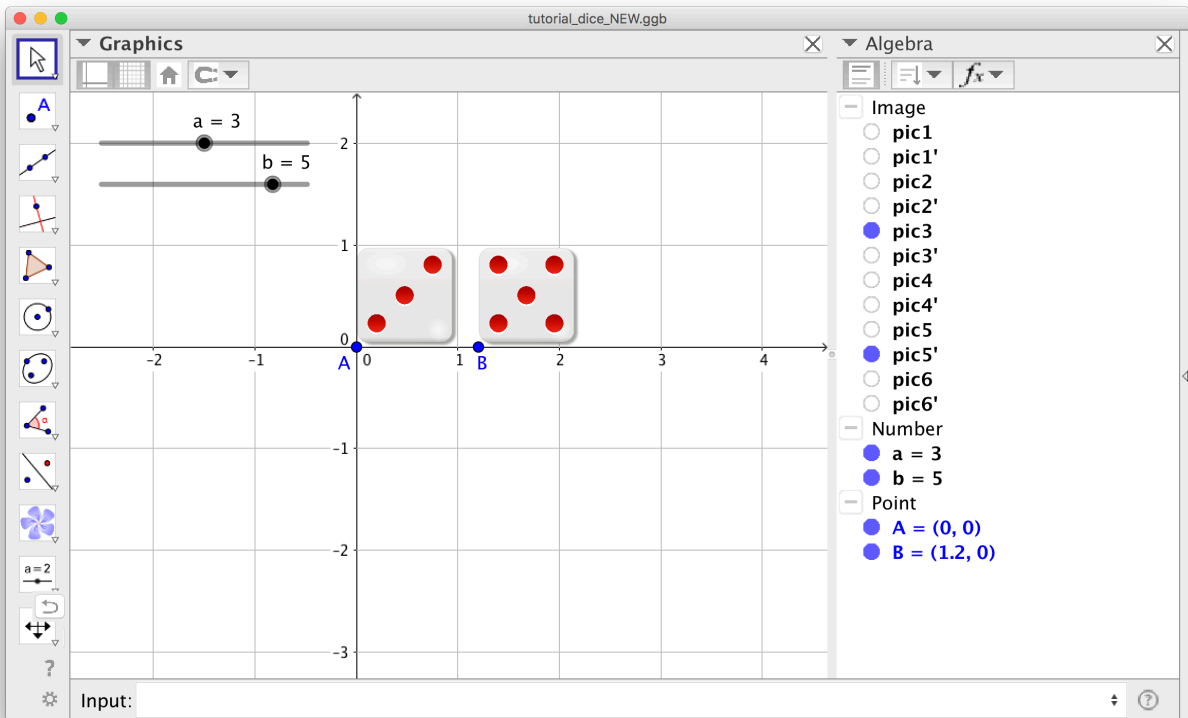
Figure 2
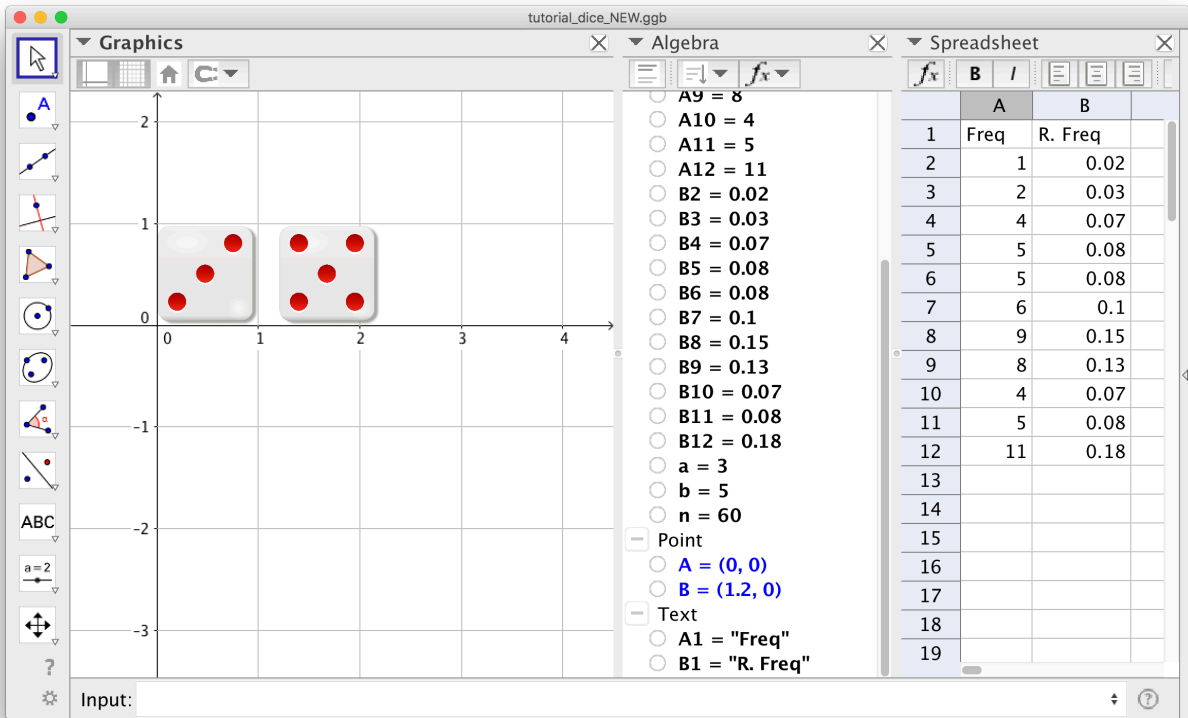
Figure 3
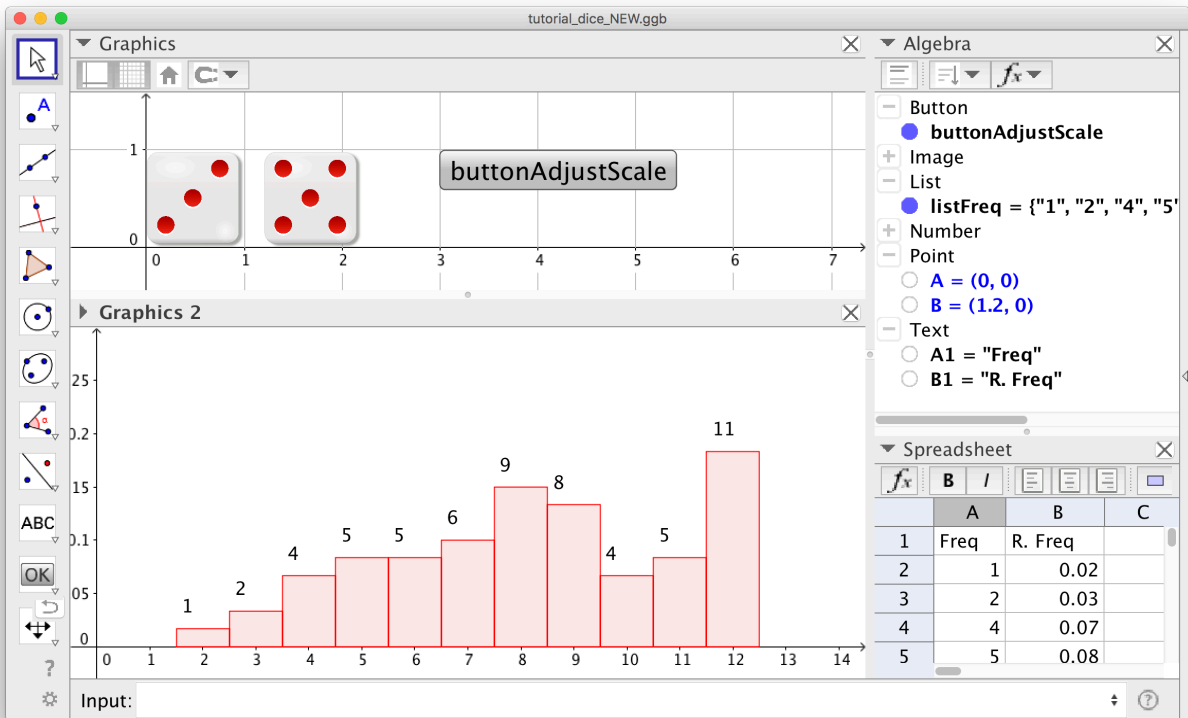
Figure 4

Figure 5
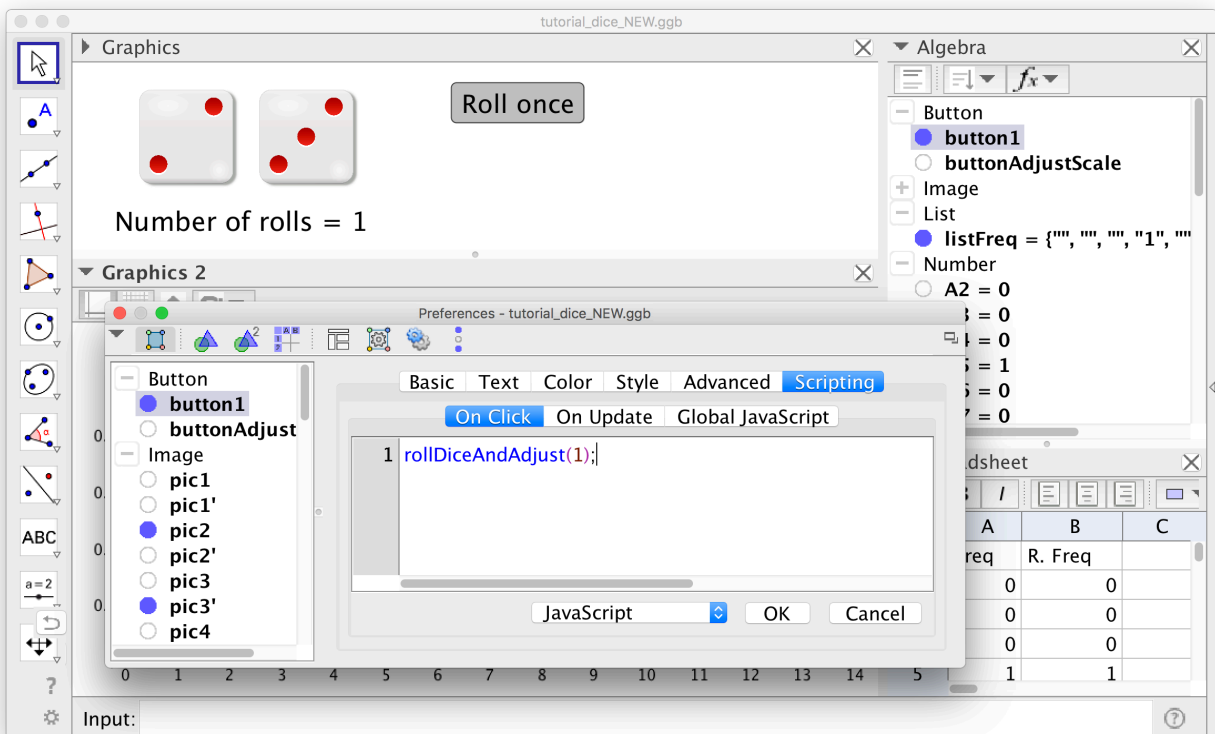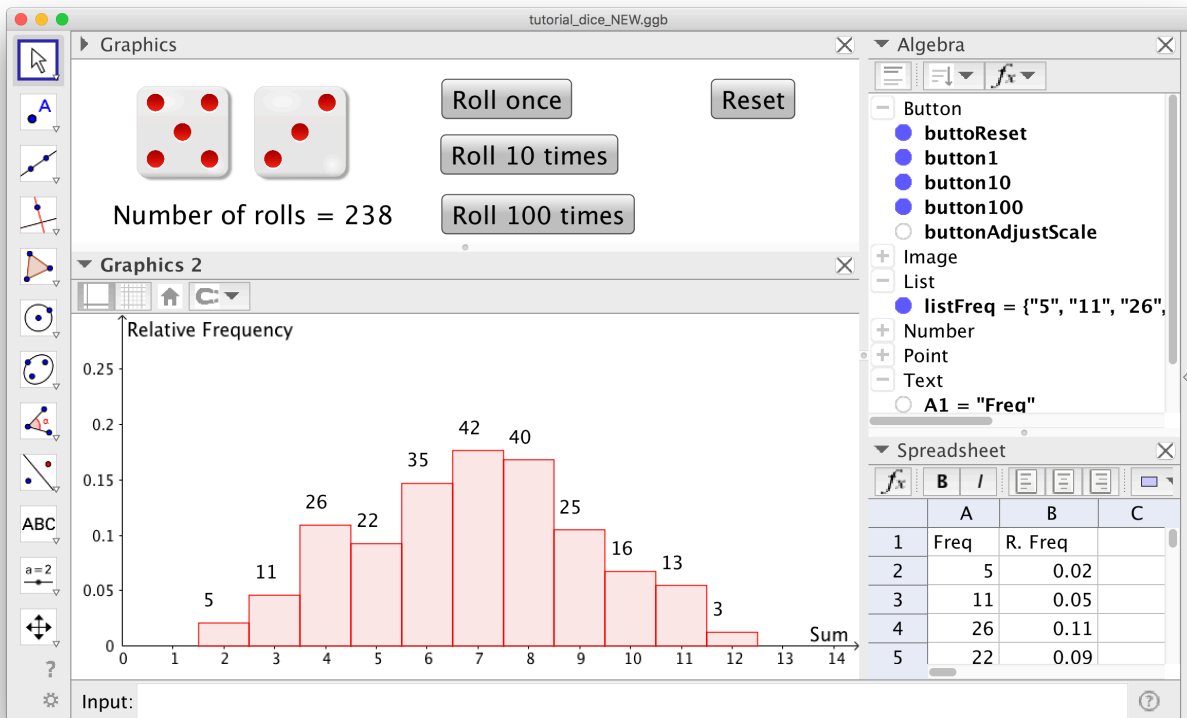

Figure 6

Figure 7
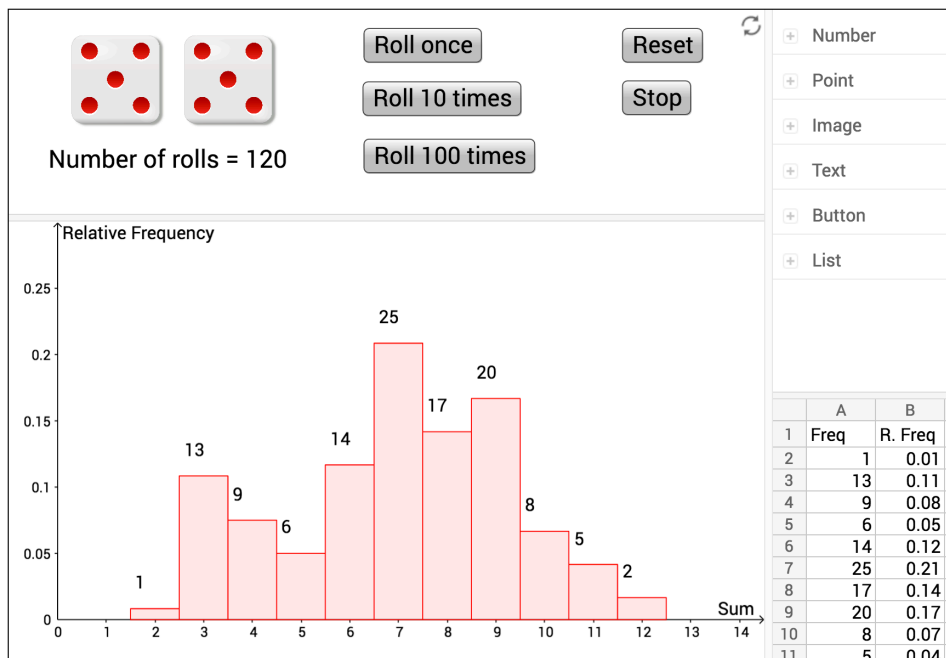

Figure 8

A more sophisticated version of this applet is available on https://ggbm.at/zFRjhwwn .

*Source: http://openclipart.org/search/?query=dado+rg1024