Creating Data with Common Distributions in Tinkerplots

The goals of this task are:
1) For you to familiarize yourself with the sampler tool in Tinkerplots
2) To solidify your understanding of probabilities and distributions.

First, you need to familiarize yourself with the sampler tool:
1. Click on the Sampler button and create a sampler on the worksheet
2. Click on the RUN button in the top left corner and see if you can figure out what is going on
   a. What does "Draw 2" mean?
   b. What are those little balls bouncing around?
   c. What does "Repeat 5" mean?
3. How can you alter the little balls in the "Mixer" to make it so that "c" is a possible outcome?
4. How can you alter the "Mixer" so that there is no replacement between draw 1 and draw 2?
5. Drag the "Stacks" button up onto the mixer. What happens?
   a. Drag one of the stacks so that it is taller. How will this change the probabilities?
   b. Change the range so that it goes from a to e.
6. Drag the "Spinner" button up onto the "Stacks". What happens?
   a. Make it so that the area for "a" is larger than the other areas.
   b. Predict what will happen if you hit the RUN button. Next, click on the RUN button.
7. Drag the "Bars" button up onto the "Spinner". What happens?
   a. Make it so that there is an equal chance of getting a, b, c, d or e.
   b. Change it so that the range is from 1 to 5 instead.
   c. Click on the Plot button and create a Plot on the worksheet.
   d. Predict what will happen if you hit the RUN button. Next, click on the RUN button.
8. Drag the "Curve" button up onto the "Bars". What happens?
   a. Click on the curve to see if you can figure out how to adjust the probabilities.
   b. Change your sampler so that it will Repeat 100 times and only draws 1 value.
   c. Predict what will happen if you hit the RUN button. Next, click on the RUN button.

Next, you need to test your understanding of probabilities and distributions:
1. Make different samplers that when repeated 1000 times with just 1 draw will create a the following:
   a. A normal distribution
   b. A uniform distribution
   c. A bimodal distribution
   d. A left skew distribution
   e. A right skew distribution

2. For each of these, use a spinner sampler and a curve sampler at a minimum. (In other words, for each of these distributions, you should make at least 2 different samplers that will create the desired distribution.) Describe how you constructed your samplers.

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	Spinner	Curve
Normal		
Uniform		
Bimodal		
Left Skew		
Right Skew		