

Random Numbers in ActionScript3

In this project you will use random numbers to roll dice every time you click a button.

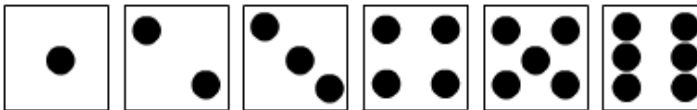
The random number generator, `Math.random` returns a value that is greater than or equal to 0, but less than 1. If we write the statement `n=Math.random()`; `n` could have a value from 0.00000 up to .9999 (with a few more decimal places.) If we multiply that value by 6, we will get values from 0.0000 to 5.9999 (with more decimal places, but still less than 6.) If we take the integer portion of that number we will have values from 0 to 5. If we then add 1 to that value we will have a value from 1 to 6, exactly what we need to roll dice! We can put this all together into 1 statement:

```
var n: int= Math.random()*6+1;
```

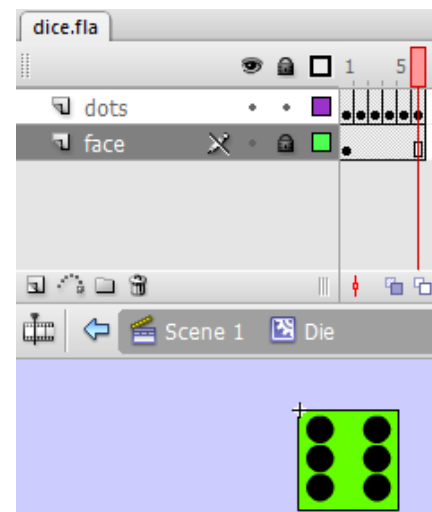
In general, the formula is `Math.random()*number of values+first value`;

Create the Movie and the Dice

1. Start a new Flash ActionScript3 project.
2. Save as dice fla
3. We will create a movie clip called Die with the following frames:



4. From the menu select Insert, New Symbol. Select MovieClip with the name Die.
5. On one layer draw a square.
6. Add another layer above that named dots.
7. You will have 6 KeyFrames: in frame1 there is one dot in the middle, in frame 2 there are two dots, etc. It will be easier to add the dots to each frame if you draw one dot and make it a graphic object. Then you can drag it from the library. The Align window might make it easier to line up the dots. One way to do this is to precisely line up 9 dots in frame 1, then add 5 more keyframes. Delete the dots you don't need in each keyframe.
8. Click Scene1 to go make to the main stage.
9. From the library draw 2 die to the stage.
10. In the properties window name them die1 and die2.
11. Test the movie. Notice that each movie clip plays from frame 1 to frame 6 and repeats over and over.



12. You can stop the dice by adding the following code:

```
die1.gotoAndStop(1);  
die2.gotoAndStop(2);
```

This will make die1 stop with 1 dot showing, die2 will have 2 dots showing.

Experiment: What happens if you try to stop one of the die at frame 8 or 0?

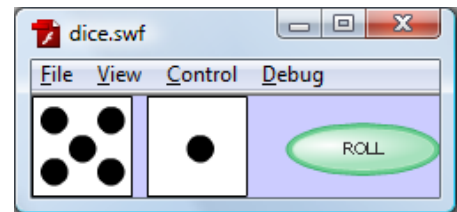
Roll the Dice

We will add a button called btnRoll.

1. From the menu select Window, Common Libraries, Buttons. Select any button you like. If you want edit the button so that it displays the words "Roll".
2. Add the code:


```
die1.gotoAndStop(1);  
die2.gotoAndStop(2);
```

```
btnRoll.addEventListener(MouseEvent.CLICK,rollDice);  
function rollDice(e:MouseEvent): void {  
    var n:int = Math.random()*6+1;  
    die1.gotoAndStop(n);  
    n= Math.random()*6+1;  
    die2.gotoAndStop(n);  
} //rollDice
```



Debugging

If your movie does not work properly, check the following:

1. In the action window click the blue check mark  to check the syntax. If there are any syntax errors, double click the error in the compiler error window to highlight the line with the error in the action window. Fix all syntax errors.
2. Make sure that all names match both in spelling and case: rollDice is NOT the same as rollDice.
3. Make sure that the button is named btnRoll and that you used the same name in the code to add the event listener.
4. Make sure that the dice are named die1 and die2.
5. If the movie works, but the two die always have the same number, make sure that you did not skip the line where n is given a new value.
6. Check the Die movie clip to make sure that each frame shows the right number of dots and has the square background.