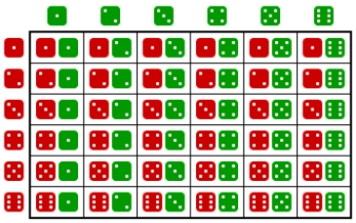
Checkpoint 8A Solutions

1) See below:
   a. {1,2,3,4,5,6}
   b. Yes. For example, if a 1 was rolled the first roll, it's not going to affect getting another 1 the second roll.
   c. $\frac{4}{6}=\frac{2}{3}$
2) See below:
   a. There will be 36 outcomes. Here are a few images that represent the sample space.

		Second throw					
		1	2	3	4	5	6
First throw	1	(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
	2	(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
	3	(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
	4	(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
	5	(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
	6	(6,1)	(6,2)	(6,3)	(6,4)	(6,5)	(6,6)



   b. $\frac{1}{36}$
   c. $\frac{35}{36}$
   d. $\frac{21}{36}=\frac{7}{12}$
   e. $\frac{3}{36}=\frac{1}{12}$
   f. $\frac{1}{36}$
3) Independent
4) Independent
5) Dependent
6) Yes they are independent because $(0.64)\cdot(0.52)=0.3328$. Because it fits the formula $P(A)\cdot P(B)=P(A\ and\ B)$, they are independent.
7) They are not independent because $\left(\frac{24}{30}\right)\cdot\left(\frac{12}{30}\right)\neq\left(\frac{9}{30}\right)$. For the events to be independent $\left(\frac{24}{30}\right)\cdot\left(\frac{12}{30}\right)$ needed to be equal to $\frac{9}{30}$. The events need to fit the formula $P(A)\cdot P(B)=P(A\ and\ B)$ to be independent.
8) See below:
   a. {red, green, green, green, blue, yellow}
   b. $\frac{1}{6}$
   c. $\frac{3}{6}=\frac{1}{2}$
   d. $\frac{5}{6}$
   e. $\frac{5}{6}$

9) $\frac{13}{30}$

10) $\frac{5}{12}$

11) The theoretical probability is $\frac{2}{6}=\frac{1}{3}$. The predicted number of multiples of 3 will be 20. The experimental probability might be the same but it doesn't have to be because it's an experiment. However, there is more of a chance that it'll not be the same since it's an experiment.

12) See below:

a. $\frac{5}{22}$

b. $\frac{1}{4}$

13) See below:

a. $\frac{4}{12}=\frac{1}{3}$

b. $\frac{1}{4}$

14) By flipping the coin 10 times, the friend determined the experimental probability, not the theoretical probability. The theoretical probability of getting a heads is $\frac{1}{2}$ because heads is one out of two outcomes of flipping a coin.