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**Probability: Everyday Decisions Based on Probabilities**

II.B Student Activity Sheet 5: Probability in Games

Victoria is playing a new video game in which the object is to find hidden treasures. To do

so, she must travel through several levels, clashing with guards and watchdogs. In one part

of the journey, Victoria must pass through two gates (Gate 1, then Gate 2) to get to the next

level.

* The chance that Gate 1 is open is 20%.
* The chance that Gate 2 is open is 30%.
* The game designer has programmed the gates so that the probability of both being

 open at the same time is 0.1.

**1.** Draw a tree diagram to represent the situation.

**2.** Draw a Venn Diagram to represent the situation.

**3.** Draw an Area Model to represent the situation.

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**4.** What is the probability that both gates are open when Victoria reaches this part of the game? Explain your reasoning.

**5.** What is the probability that only Gate 1 is open when Victoria reaches this part of the game? Explain your reasoning.

**6.** What is the probability that only Gate 2 is open when Victoria reaches this part of the game? Explain your reasoning.

**7.** What is the probability that neither gate is open when Victoria reaches this part of the game? Explain your reasoning.

**8.** What is the probability that Victoria finds exactly one gate open?