Simulation of random guessing

The required elements for a simulation (four-step process: State, Plan, Do, Conclude; **SPDC**)

–**State** must include: • Identify variable • Statement of probability in symbols or words.	–**Plan** must include: • What tool? • What values are you assigning? • How many values are you picking each time? • How many times are you conducting the simulation? • What about repeat digits or ignored digits? • What are you recording?
–**Do** must include: • Simulation data, if number of trials is 20 or less • Summary of data for larger trials	–**Conclude** must include: • Statement of probability • Answer to question • Usually about being surprised/reasonable/expected, etc.

Directions: Show all your work. Indicate clearly the methods (four-step process: **SPDC**) you use, because you will be graded on the correctness of your methods (four-step process: **SPDC**) as well as on the accuracy of your results and explanation.

Question: A statistics instructor suspects a high score may be due to factors other than knowledge. What is the empirical probability that a student with absolutely no knowledge of English could randomly guess the correct answers on a 10-question English true/false quiz and achieve a grade of 90% orbetter? Should the instructor launch an investigation based on a 90% result? Design and execute a 20-trial simulation using the four-step process (State, Plan, Do, Conclude).

Table of Random Digits

60942 12837 01783 39007 90516 59424 70712 18685 80467 89617

49309 69275 60037 45314 19515 47211 45719 27768 60710 88591

00302 95462 45598 79758 09304 17942 35069 12154 90422 66310

55781 36906 55562 06703 30129 36294 15336 94226 36625 63390