**MR. GRIST CREATIVE STORY**

So, when I was a kid, I was on my grandpa’s farm. He always called me Sonny. Cuz he couldn’t remember my name. He said, “Look here, that there well got no water! Now, go on get busy digging anuther’un.

“Well, how deep?”I said

The well was too deep to see the bottom. He dropped a rock down the well and timed how much time it took to hit the bottom. And recorded the time. He did a few trials and got an average falling time.

“Twice as deep, I want the rocks to take twice as long to fall.” He said.

So I started digging.

GRANDPA WAS WRONG ABOUT SOMETHING.

You know you have to dig the well. And you know you have to dig it **twice as deep**… Figure out where grandpa went wrong…

1. **Write a script** describing to my grandpa what **would happen** if you followed his instructions, and kept digging until the rock fell for 2x the time.1pt.
2. Report to him **how long** the rock will fall **in words** when the well is twice as deep. 1pt

-With mathematical proof.

2a. Use kinematic equations to prove your point. Without numbers. 1pt.

OR

2b. **Fabricate sample numerical data** and calculate the falling time for twice the distance. 1pt

1. When grandpa doesn’t believe all your fancy book learnin’, describe a procedure that will show him that double the falling time does not equal double the falling distance. Or that double the falling distance is not double the original falling time. 1 pt
2. EC make a video with all characters, funny!!!
3. Falling objects will have a constant \_\_\_\_\_\_\_\_.
   1. Speed
   2. Acceleration
   3. Velocity
4. If the falling time is doubled the well will be deeper.
   1. True
   2. False
5. If the falling time is doubled the well will be\_\_\_\_\_.
   1. Twice as deep
   2. More than twice as deep
   3. Less than twice as deep
   4. Both B and C
6. A rock dropped down a 5 meter well will fall for 1 second. How long will it take for a rock to fall down a 10 meter well?
   1. 2 seconds
   2. 1.4 seconds
   3. 1 second
   4. 4 seconds
7. How deep would a well be if a rock fell for 2 seconds?
   1. 20 meters
   2. 5 meters
   3. 10 meters
   4. 25 meters
8. What is the mathematical relationship between falling time and distance?
   1. If falling time is **doubled**, falling distance is **quadrupled**.
   2. If falling time is **doubled**, falling distance is **doubled**.
   3. If falling time is **doubled**, falling distance is **cut in half**.
   4. If falling time is **doubled**, falling distance is **one third**.
9. What is the relationship between distance and falling time?
   1. If falling distance is doubled, falling time is doubled.
   2. If falling distance is doubled, falling time is more than doubled.
   3. If falling distance is doubled, falling time is increased but less than double.
   4. If falling distance is doubled, falling time is the same.
10. During the time interval of 0-1 seconds the rock will fall a certain distance. During the time interval of 1-2 seconds the rock will fall \_\_\_\_\_\_.
    1. The same distance
    2. A greater distance
    3. Less distance
    4. Exactly half the distance.
11. Grandpa drops a small rock and a big rock down the well. Compare the falling times for the two rocks.
    1. The big rock will hit first
    2. The small rock will hit second
    3. The two rocks will hit at the same time
    4. Depends on the mass of the rock
12. Which situation needs “no fancy book learnin” to demonstrate the well problem.
    1. Two identical rocks dropped from the same height while recording falling time accurately.
    2. One big rock and one small rock dropped from the same height while recording falling time accurately.
    3. One rock dropped from the 1st story of a building and one rock dropped from the 2nd story of a building while recording times accurately.