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## In the Classroom

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# Nuclear Chain Reaction Using Dominoes

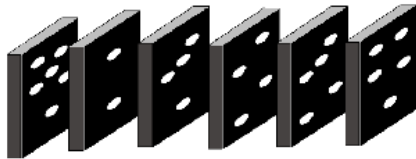
### Materials:

1. Bunch of dominos
2. Ruler
3. Flat table that doesn't shake

### Directions:

1.  Arrange the dominos in the pattern shown.

1. On another section of the table, arrange two straight lines of dominos.
2. Knock over the single domino in front on the first pattern. Watch what happens.
3. Now, knock over the first domino in one of the two straight lines.



1. Take the ruler and hold it anywhere between the dominos lined up in the second straight line. Knock over the first domino and watch what happens. Not all the dominos fell over.

### What you'll discover!

In a nuclear fission reaction in a nuclear power plant, the radioactive element Uranium-235 is used in a chain reaction.

The fission of U-235 splits off two neutrons, which in turn strike two U-235 atoms.

Two neutrons are split from each of the two U-235 atoms. Each of these neutrons then go on to strike another U-235 atom. Each of those atoms are split releasing two neutrons, which go on and hit more Uranium atoms.

The chain reaction continues on and on, getting bigger and bigger with each split.

The things that slow down a chain reaction are the control rods. A control rod is made up of cadmium or boron, which absorb neutrons. If you insert the control rod between the uranium atoms, the amount of neutrons available to cause more splits is reduced.

In the second line up of dominos, the ruler served as a control rod. Putting it between two dominos breaks the chain reaction similar to what happens in a nuclear reactor.

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