***Radiation and radioactivity***

1. Copy and **modify** the following statement so it is correct.
2. Radiation can be fast moving \_\_\_\_\_\_\_\_ or electromagnetic \_\_\_\_\_\_\_\_.
3. **State** the type of force that acts on particles in the nucleus of an atom to:
4. hold them together
5. push them apart

***Atoms and isotopes***

1. **Define**‘radioisotope’.
2. **List** four radioactive elements.
3. **Explain** why large atoms are more likely to be radioactive than small ones.

***Three types of nuclear radiation***

1. **List** the three main types of radiation.
2. **Identify** the type of nuclear radiation that:
3. is the same as in a helium nucleus
4. can pass through paper but not aluminium
5. is not made of particles
6. requires the conversion of a neutron into a proton and an electron.
7. is the product of nuclear fission.
8. **Contrast** the speeds and penetrating abilities of the three radiation types.

***Half-life***

1. **Clarify** the meaning of ‘half-life’.
2. Iodine-131 has a half-life of 8 days. **Calculate** the amount
3. left from a 2 kg sample after:
4. 8 days
5. 16 days
6. 24 days

***Sources of nuclear radiation***

1. **List** two natural ways in which radiation is produced.
2. Radon gas is present in our atmosphere. **Outline** how it is produced.

***Effects of radiation***

1. **Explain** why ions produced by radiation are more likely to affect our cells than other atoms.
2. Nuclear radiation may be detected in several ways. **Describe** two of these.
3. **State** the size of the radiation dose you are likely to receive over the next year.

***Uses of nuclear radiation***

1. **List** two uses of nuclear radiation in industry.
2. **State** an advantage and a disadvantage of food
3. irradiation.
4. **Describe** what is meant by a ‘dirty bomb’.