Revision from S1 and S2

Learning Intentions

☐ I am aware of different states of matter and can name them
☐ I can state how matter behaves in each of the different states
☐ I can identify the properties of solids, liquids and gases.

Success Criteria

I can:

☐ Change the shape of a gas and a liquid
☐ Change the volume of a gas
☐ Show that all gases are not “invisible”
☐ Identify different materials as solids
☐ Describe the bonds between atoms in a solid, a liquid and a gas
☐ Identify why we need materials to be in different states in everyday life

Models of Matter: Floating and Sinking

Learning Intention

I can:

☐ Devise an experiment to compare the buoyancy of different materials
☐ State the relationship between density mass and volume
☐ Carry out calculations using the equation $\rho = \frac{m}{V}$
☐ State the factors that affect buoyancy.
☐ Determine an appropriate relationship between density and buoyancy

Success Criteria

I can:

☐ Devise a suitable experiment to compare the factors which affect buoyancy
☐ Explain the effect of density on buoyancy
☐ Successfully carry out calculations using $\rho = \frac{m}{V}$
☐ Transfer these skills I have learned to everyday life – floating in a swimming pool, materials used for objects required to float, how submarines can rise and sink, how to raise a sunken ship
**Kinetic Model of Gas**

**Learning Intention**
I can:
- Predict the behaviour of a fixed mass of gas at constant temperature when its volume is decreased
- Predict the behaviour of a fixed mass of gas at constant temperature when its pressure is decreased
- Predict the behaviour of a fixed mass of gas at constant volume when its temperature is increased

**Success Criteria**
I can:
- Describe the behaviour of gas particles when volume is decreased
- Describe the behaviour of gas particles when pressure is decreased
- Describe the behaviour of gas particles when temperature is increased
- State relationship between the pressure and volume of a fixed mass of gas at constant temperature
- Transfer this skill to a variety of systems within the home e.g. Heating systems

**Speed**

**Learning Intention**
- I am aware that different vehicles have different average speeds
- I can compare the average speed and instantaneous speed
- I can use the results from experimental procedures to calculate average speed and draw speed/time graphs

**Success Criteria**
I can:
- Calculate average speed using $v=d/t$
- Draw appropriate speed/time graphs for a variety of motions
- Explain the difference between average and instantaneous speed
- Transfer this skill to everyday life – speed cameras, radar “guns” etc
Forces and Acceleration

Learning Intention
I can:
- Measure initial speed, final speed and acceleration by two different methods
- Calculate acceleration from experimental results
- Use NI land balanced forces to explain constant speed, making reference to frictional forces.
- Use N2 to explain the movement of objects in situations involving constant acceleration.
- Carry out calculations using the relationship between force, mass and acceleration in situations where only one force is acting.
- Carry out calculations using the relationship between weight, mass and gravitational field strength within our solar system.
- Explain the risks and benefits associated with space exploration including challenges of re-entry to a planet’s atmosphere.
- Explain the use of thermal protection systems to protect spacecraft on re-entry.

Success Criteria
I can:
- Carry out all of the learning intentions above to a high standard
- Transfer this skill to everyday life – car safety, heat resistant mats etc plus using a balance
Knowledge of the Universe

Learning Intention

☐ I am aware of the range of heights and functions of satellites in orbit around the earth, including geostationary and natural satellites.
☐ I understand the dependence of period of orbit on height.
☐ I can explain the use of parabolic reflectors to send and receive signals.
☐ I can use the relationship between distance, speed and time applied to satellite communication.
☐ I am aware of the range of applications of satellite including telecommunications; weather monitoring; the use of satellites in environmental monitoring.
☐ I can give a clear description of a planet, moon, star, solar systems, exoplanet, galaxy and universe.
☐ I am aware of the scale of the solar system and universe measured in light years and I can carry out calculations using light years

Success Criteria
I can:
☐ Show clear evidence of understanding of each learning intention above
☐ Relate the use of satellites to everyday life – especially in relation to telecommunications

Earth and Space

Learning Intention

☐ I am aware of the use of satellites in developing our understanding of the global impact of mankind’s actions.
☐ I am aware of space exploration and its impact on our understanding of the universe and planet Earth.
☐ I have researched the conditions required for an exo-planet to sustain life.

Success Criteria
I can:
☐ Investigate the operation of satellites and space exploration and write a formal report into my findings
☐ Write a report on findings from research task on exo-planet.
☐ Transfer this skill to everyday life regarding awareness of looking after planet Earth and its resources