

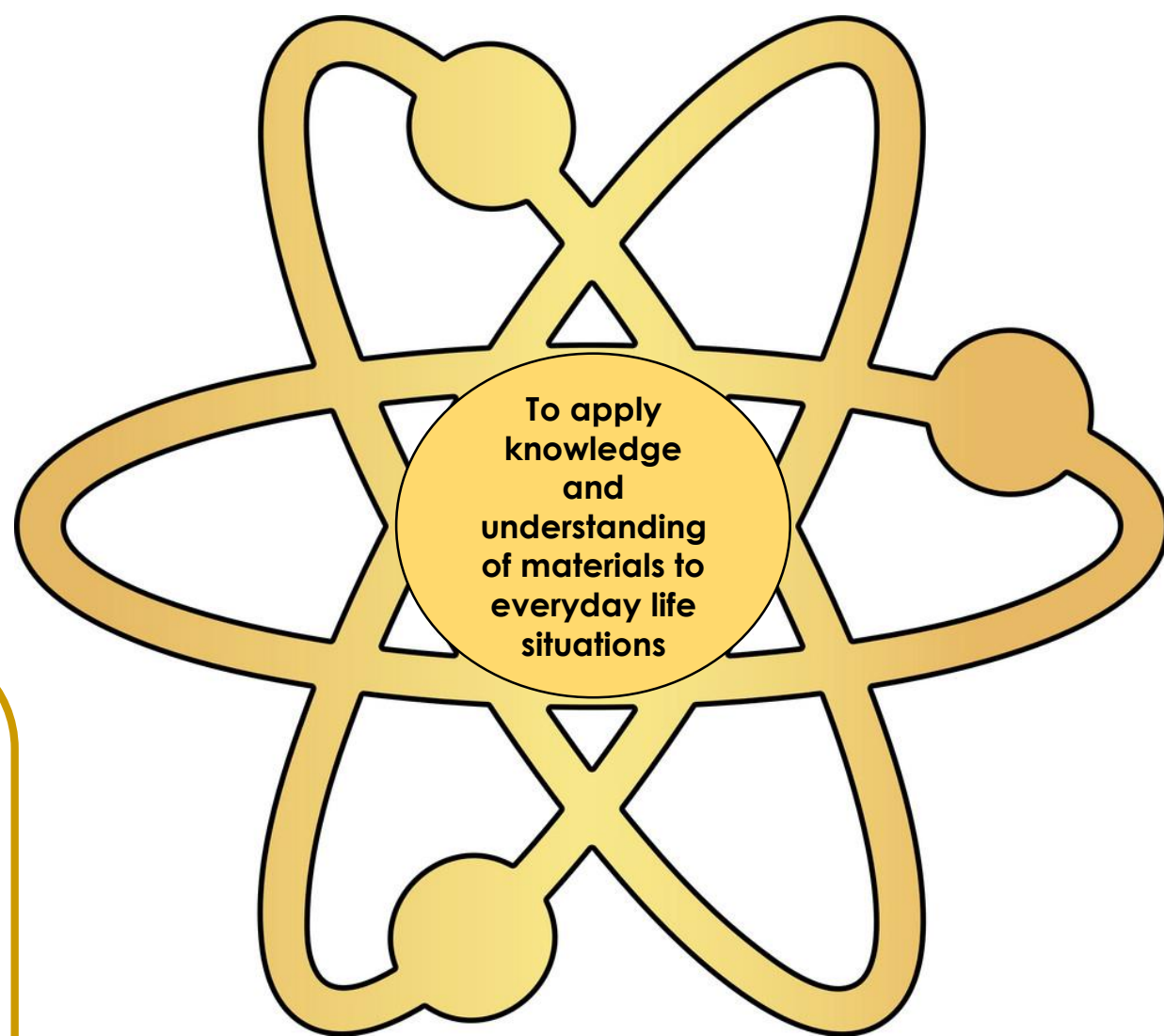
Materials

Key Vocabulary

Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent, Translucent, Brick, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil, Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing

Opportunities for Scientific Investigation

Properties of materials- testing
Suitability of materials for everyday use - What is best to stir a hot drink?
Etc
Waterproof or not?
Fire retardant or not?
Dissolve or not? Salt Water Vs Tap Water Vs 'Pure Water'
What makes a good....boat?
Float or sink?
Reversible and irreversible changes - toast/milk tie-dye/gummy bears/melting crayons/making cakes/ etc..
Separating materials - sieve/filer/mixing/salt crystal extraction



Conscious Connections

Intra-Curricular:

Earth and Space
States of matter

Cross Curricular:

Art
Design Technology

- Handles and tests materials (squash/squeeze/tear/ pull etc - not the vocab- just actions of testing)
- Begins to sort objects simply (e.g. by size, by colour, by use)
- Begin to take part in exploration experiments which test simple properties
- Begin to use Key Vocab - simple property descriptions and names of materials
- Understand that some things always happen (e.g. water makes paper wet)
- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials with increasing complexity (e.g. see through to transparent)
- compare and group together a variety of everyday materials on the basis of their simple physical properties.
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- Understand that a material is suitable for a particular use, begin to identify and explain this.
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

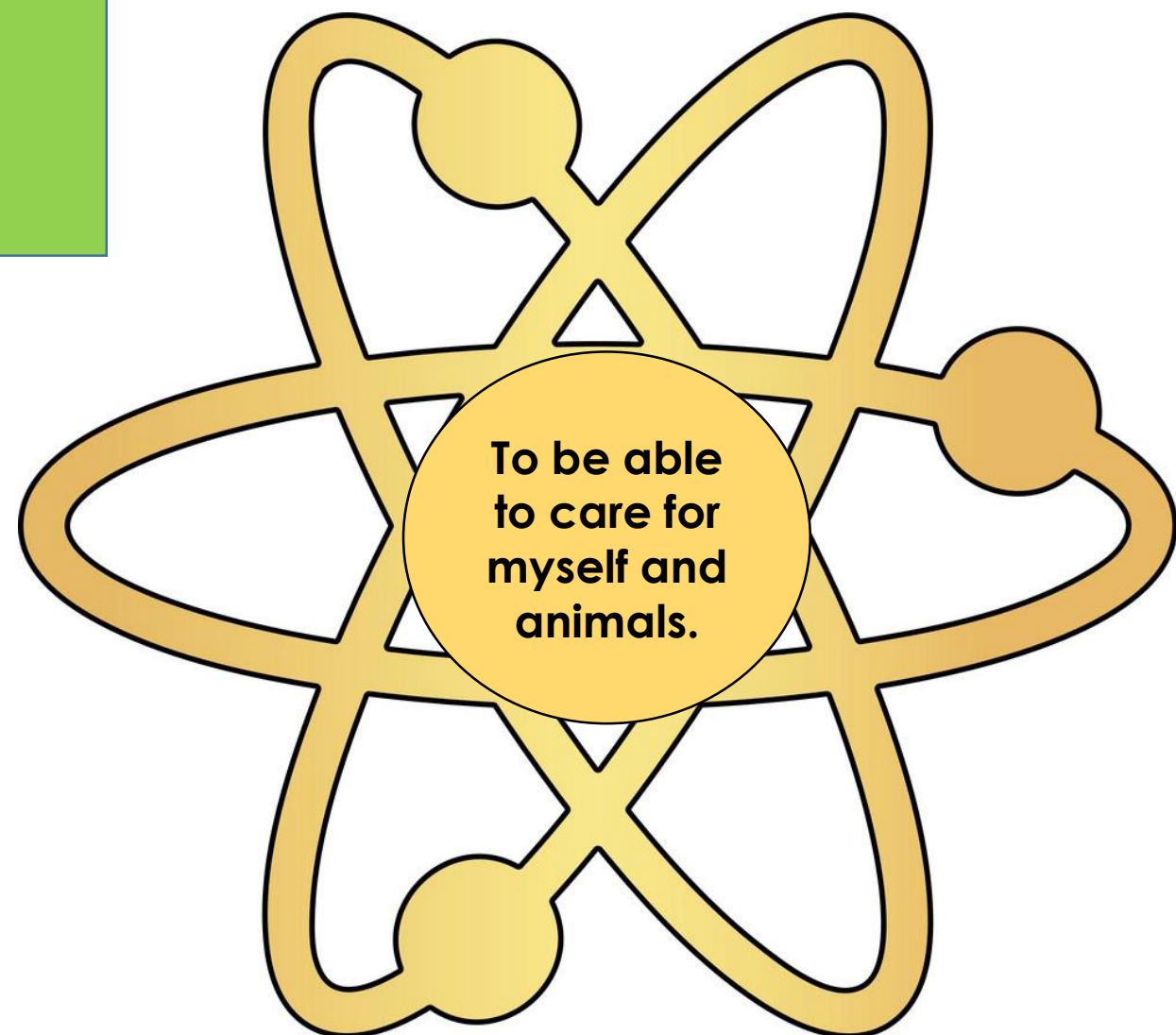
Progression



Animals including humans

Key Vocabulary

Body Parts (head, toes, shoulders etc.), Fish, Reptiles, Mammals, Birds, Amphibians, Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak, Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene, Movement, Muscles, Bones, Skull, Nutrition, Animals including humans Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar, foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty Animals including humans Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration, nerves, skeleton (and main bones within)



Opportunities for Scientific Investigation

Comparing ourselves (feet size etc.)
Birdwatching (animals watching)
Making your own pooter
Pond dipping
Identification and classification games
Investigating camouflage
Making a wormery
Senses Investigations - taste foods, feeling (guess the object etc)

Conscious Connections

Intra-Curricular:

Animals and their habitats

Materials

Seasonal Changes

Cross Curricular:

Art- Animal print etc

Drama - Animal Movement

PHSE

Geography - The world - animals in it and where they live

Progression

- Explores own Body (sounds, movement etc)
- Begins to use senses correctly when asked
- Aware of animals
- Begins to name features of themselves and animals
- Begins to name some animals
- Begins to care for animals
- Recognises different animal movement and requirements
- Begins to recognise certain animals can be found in certain places
- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- notice that animals, including humans, have offspring which grow into adults
- Use senses correctly when asked (include sweet/sour etc)
- Notice than animals are adapted to environment
- Begin to be aware that animals have 'innards' (including blood)
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify and name a variety of common animals that are carnivores, herbivores and Omnivores (understand the terms)
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.
- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey.
- describe the changes as humans develop to old age
- Pupils should draw a timeline to indicate stages in the growth and development of humans.
- They should learn about the changes experienced in puberty.
- Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.
- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans

Seasonal Changes

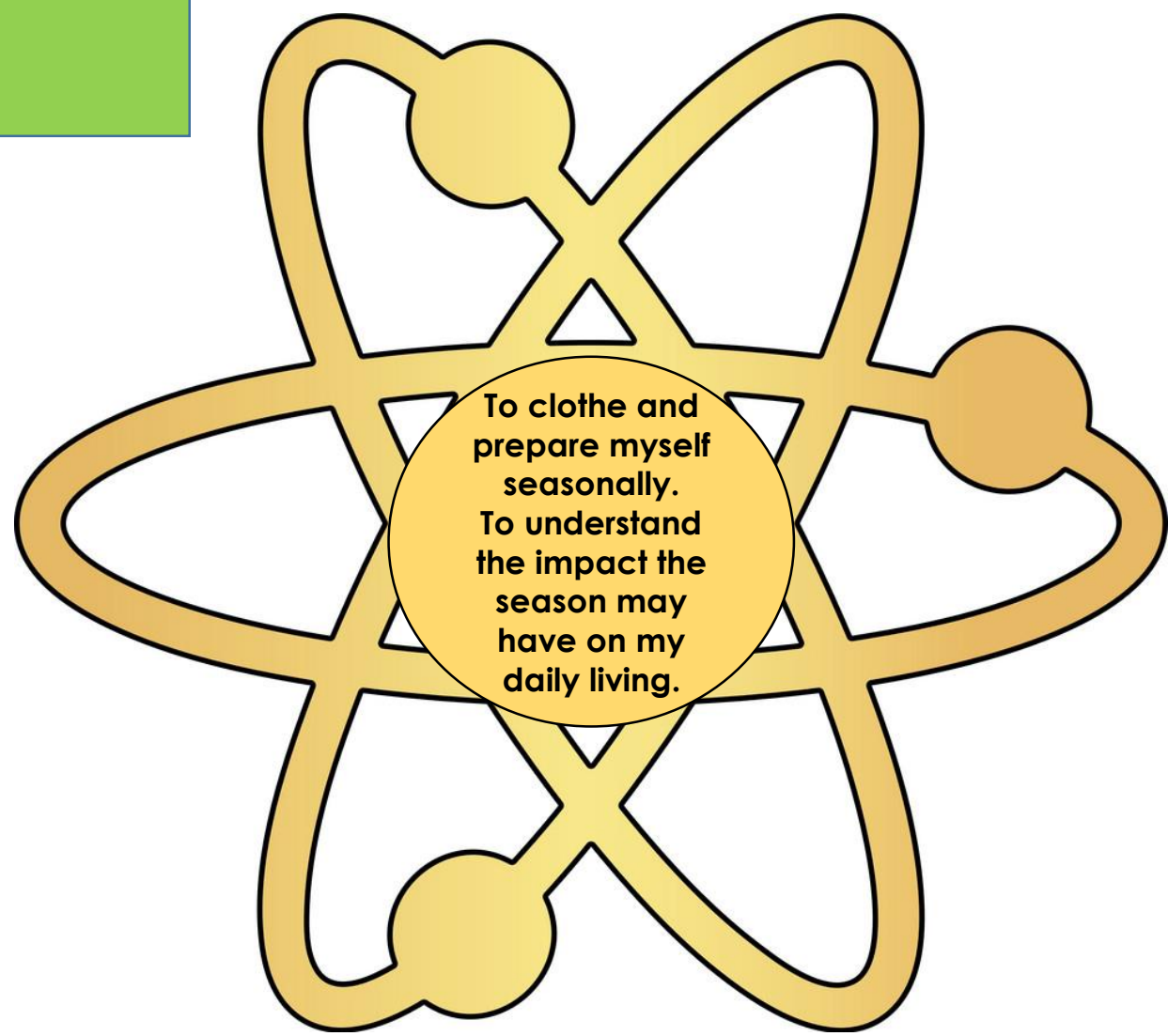
Conscious Connections

Intra-Curricular:

Animals and their habitats
Earth and Space
Materials

Cross Curricular:

Art
Drama - Emotions and feelings
PHSE
Geography
RE



To clothe and prepare myself seasonally.
To understand the impact the season may have on my daily living.

Opportunities for Scientific Investigation

Leaf collection/collage
Measuring the weather- wind/rain
Watching effects of sun using light sensitive beads/photo paper
Cold/hot - insulation investigation
Light and Dark investigations/exploration

Key Vocabulary

Cold, hot, freezing, snow, ice, sun, sunshine, rain, leaves, trees, hibernate, migrate, sky, harvest, flowers, offspring, babies (animals being born), blooming, grow, hail, frost, fog, humid, wind, fruit, Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark

Progression

- Begins to notice outside and changes which happen daily (morning/night)
- Identifies if it is light/dark
- Experiences the weather using senses
- Show an awareness that weather changes
- Has an understanding of temperature
- Shows an awareness of appropriate clothing for weather
- Notices environmental changes in seasons
- Identifies difference between day / night
- Awareness of not drinking rain water
- Explore selves and how they feel (warm/cold etc..) associate this with dressing / undressing /clothing and environment they are in
- Describes weather using appropriate terminology
- Notices changes in animals during seasons (hibernation etc.)
- Understands there are other weather in different places
- Identifies and understands weather phenomena around the world
- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.
- Knows how to look after self - dress appropriately



Earth and Space

Key Vocabulary

Light, dark, moon, star, planet, space, astronaut, names of planets, globe, sphere, Earth, Sun, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation

Opportunities for Scientific Investigation

Crater investigation- does the height of a crater dropped affect size of crater

Does the size of ball affect size of crater

Does the diameter of a crater affect width of a crater.

Which material would be reflective in space?

Does the colour of a spacesuit affect heat absorbed?

Shadow tracking

Investigating light sources

Reflection in space

Star Gazing

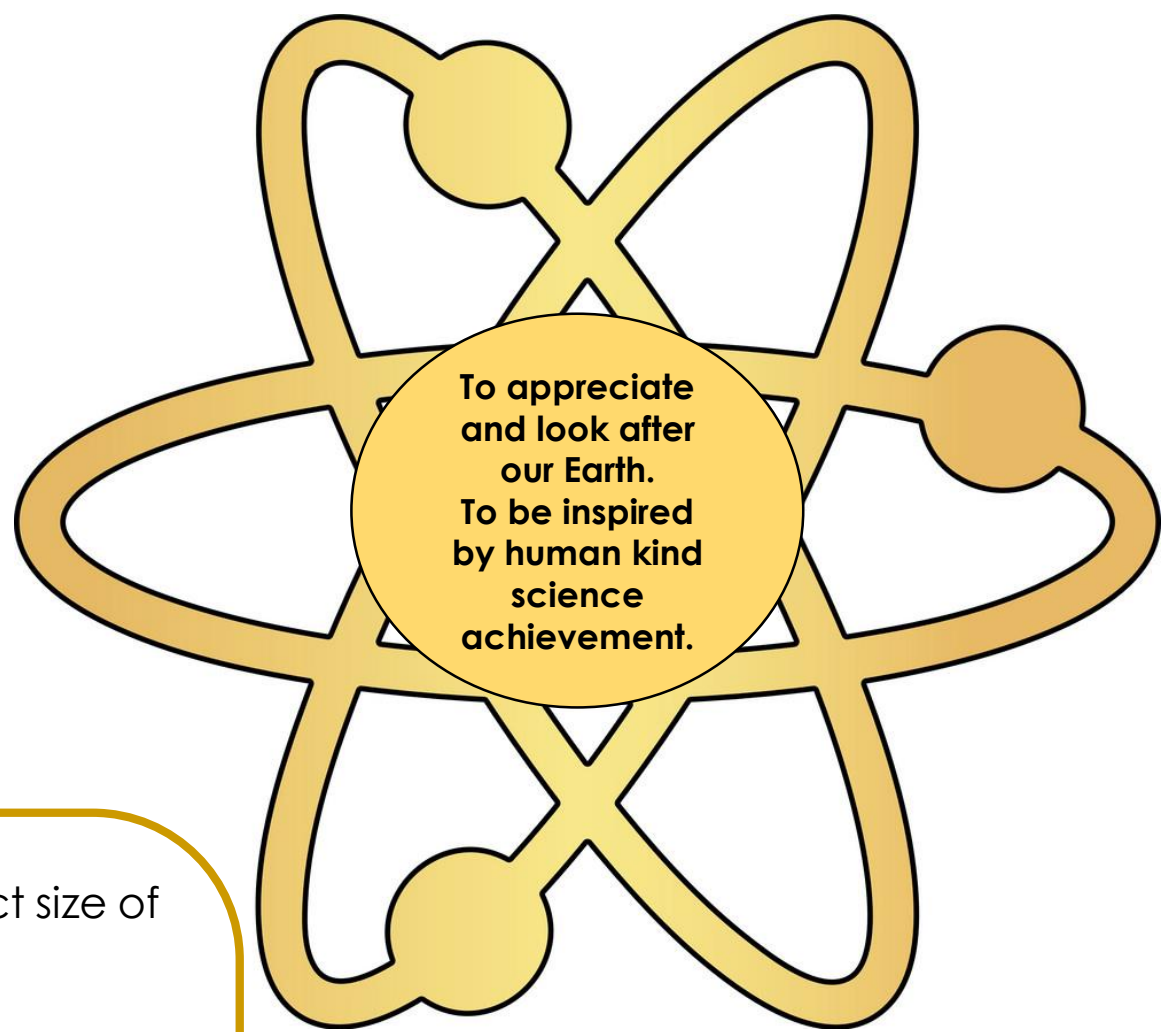
Lunar phases tracking / oreos

Making craters in play dough

Egg-ernaught

Fruit / Sport balls to model planets

Galaxy in a jar



Conscious Connections

Intra-Curricular:

Animals and their habitats

Light

Cross Curricular:

Art

PHSE

Geography

RE

History

Progression

- Understand the difference between light /dark
- Handles different rocks
- Handles spheres
- Identify light sources
- Recognises things have shadows (associates these with sunny day)
- Looks at moon, knows we have a moon (communicates 'Moon')
- Looks at stars in the sky (communicates 'star')
- Knows we have a sun and it makes us warm - recognises differences on sunny days (communicates 'sun')
- Looks at footage and photos of the planets. Solar system - begins to describe and name what they see
- Studies astronauts - what they do, what they look like etc.
- To understand that we live on a planet called Earth - explore the globe
- To identify other planets in the solar system.
- describe the Sun, Earth and Moon as approximately spherical bodies
- To identify features of the planets, moons and the sun.
- To understand we are part of a solar system made of planets, the sun, moons and asteroid belts.
- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
- To understand space exploration including satellites and the moon landings.
- Investigate Elon Musk and Nasa- current space travel
- Name some astronauts and research their missions /lives/achievements)
- To understand current space developments and space programmes.

States Of Matter

Key Vocabulary

Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating, melt, reversible, irreversible, dissolve, change, Properties of materials, heat, cool, steam, water, ice.

Conscious Connections

Intra-Curricular:

Animals including humans (senses)

Materials

Light

Cross Curricular:

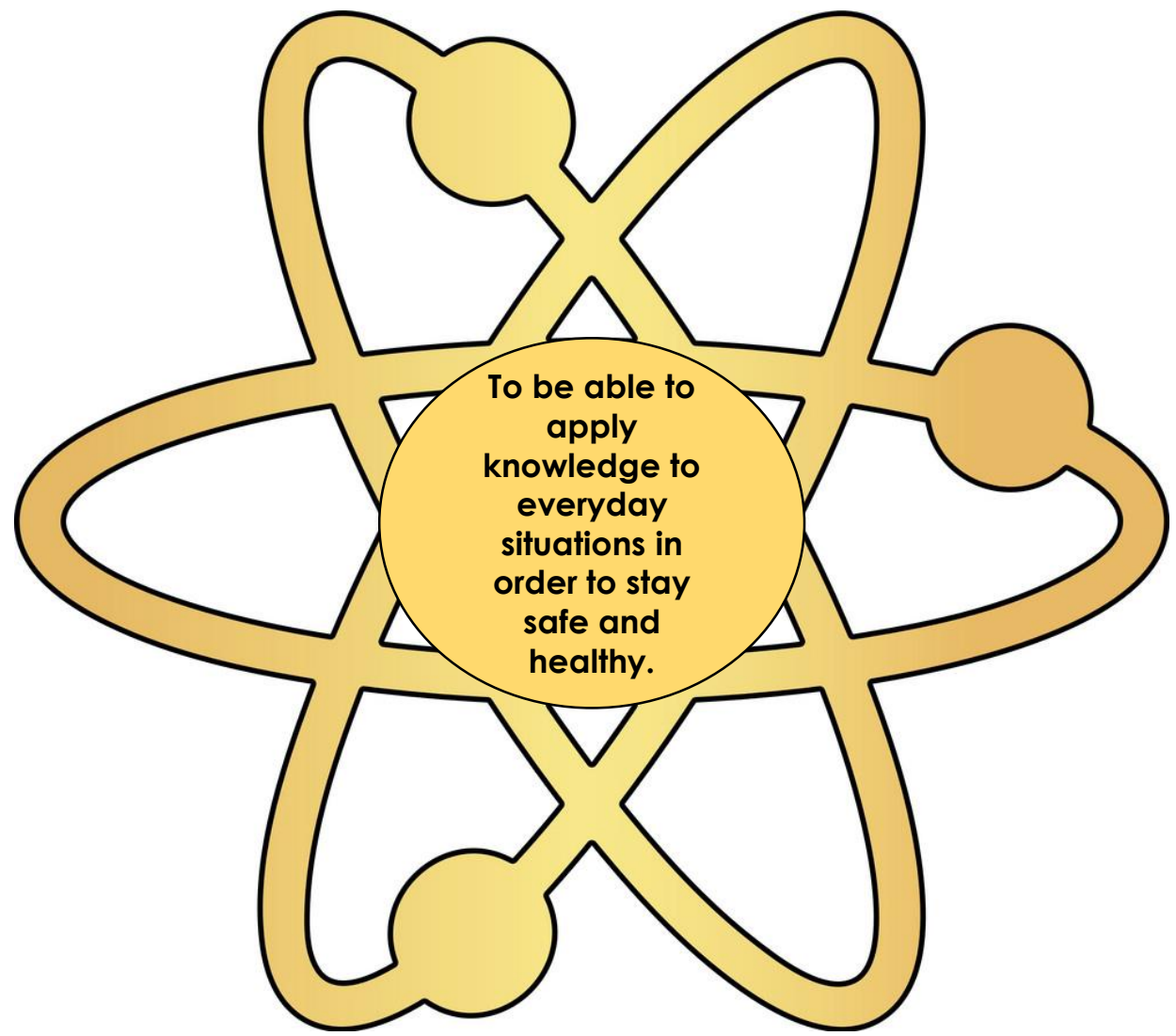
Art

Geography

Design Technology

Opportunities for Scientific Investigation

Reversible and irreversible changes, Jelly babies, gummy bears, crayons, chocolate, toast, jelly. Cornflour, custard, excavate the toy from ice (melting challenge), water cycle, make a cloud in a jar,



Progression

- Explores and feels materials
- Explores and feels temperature
- Understand hot/cold (communicates this)
- Names common materials
- Orders before and after changes
- Notices changes which occur in materials (clay goes hard when left out / ice cream melts etc.)
- Notices changes in weather
- Investigates water in its three forms
- Understand what steam is - observe it and investigate it
- Name some solids and liquids
- Begin to differentiate between solids and liquids - classify and sort them
- Investigate gases (blow up balloon etc, use helium for balloon, make CO2 /fire extinguisher)
- Name some gases
- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled
- Investigate that some changes can be reversed and some cannot
- identify the part played by evaporation and condensation in the water cycle
- associate the rate of evaporation with temperature



Forces and Magnetism

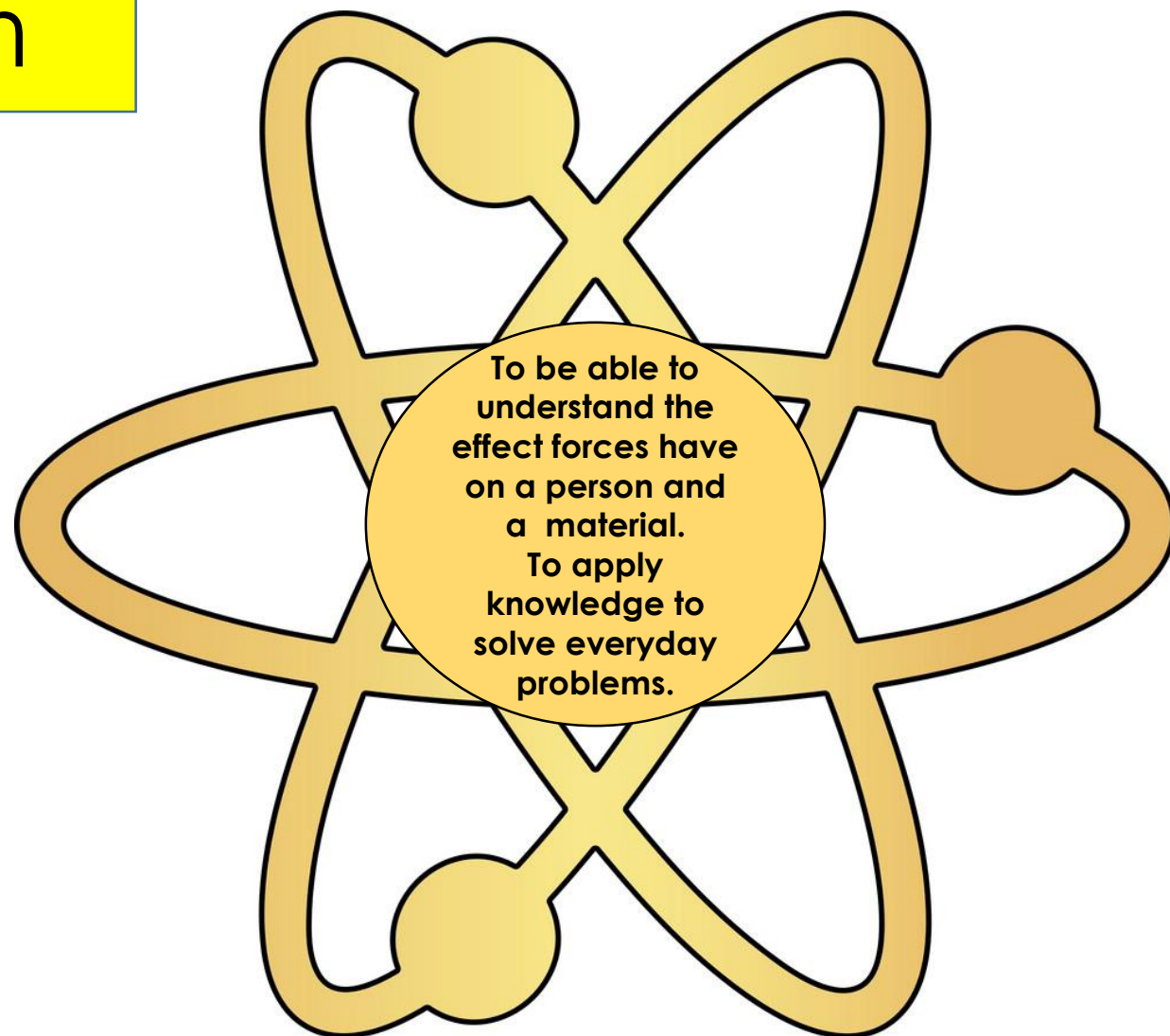
Conscious Connections

Intra-Curricular:

Animals including humans (senses)
Materials
Earth and Space
States of matter

Cross Curricular:

Geography
Design Technology
PE



Opportunities for Scientific Investigation

Friction investigations (shoes on ramps etc.), magnet investigations and exploration, making bread and resulting forces, balloon animals and resulting forces, park play (forces on roundabouts, swings etc.), magnetic or not (materials), magnet racing, funny faces with magnets (iron filings),

Key Vocabulary

Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull. Twist, squeeze, speed, direction, squash, hit, spin, north/south pole, Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, slippy.

Progression

- Explores movement within self and others
- Observes and respond to different movements
- Manipulates objects and notices effect (e.g. kicking a ball)
- Plays with magnets and explores them
- Begin to use key vocabulary and demonstrate understanding when asked (e.g. push, pull)
- Find items which can be pushed, pulled, twisted etc..
- Predicts what will happen as a result of a force
- Sort items into magnetic/not magnetic
- compare how things move on different surfaces- begin to explore friction
- Investigate materials in terms of forces, predict what will happen.
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- notice that some forces need contact between two objects, but magnetic forces can act at a distance
- describe magnets as having two poles
- predict whether two magnets will attract or repel each other, depending on which poles are facing.
- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Living things and their habitats

Key Vocabulary

Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats, Reproduction, Offspring Classification, Vertebrates, Invertebrates, Micro-organisms,, Living, Dead,, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert, arctic/Antarctic, rainforest, hibernate, migrate, shelter, survival, adaptation

Opportunities for Scientific Investigation

Investigating a plant in different conditions, habitat preferences in woodlice, identifying optimum growth conditions,

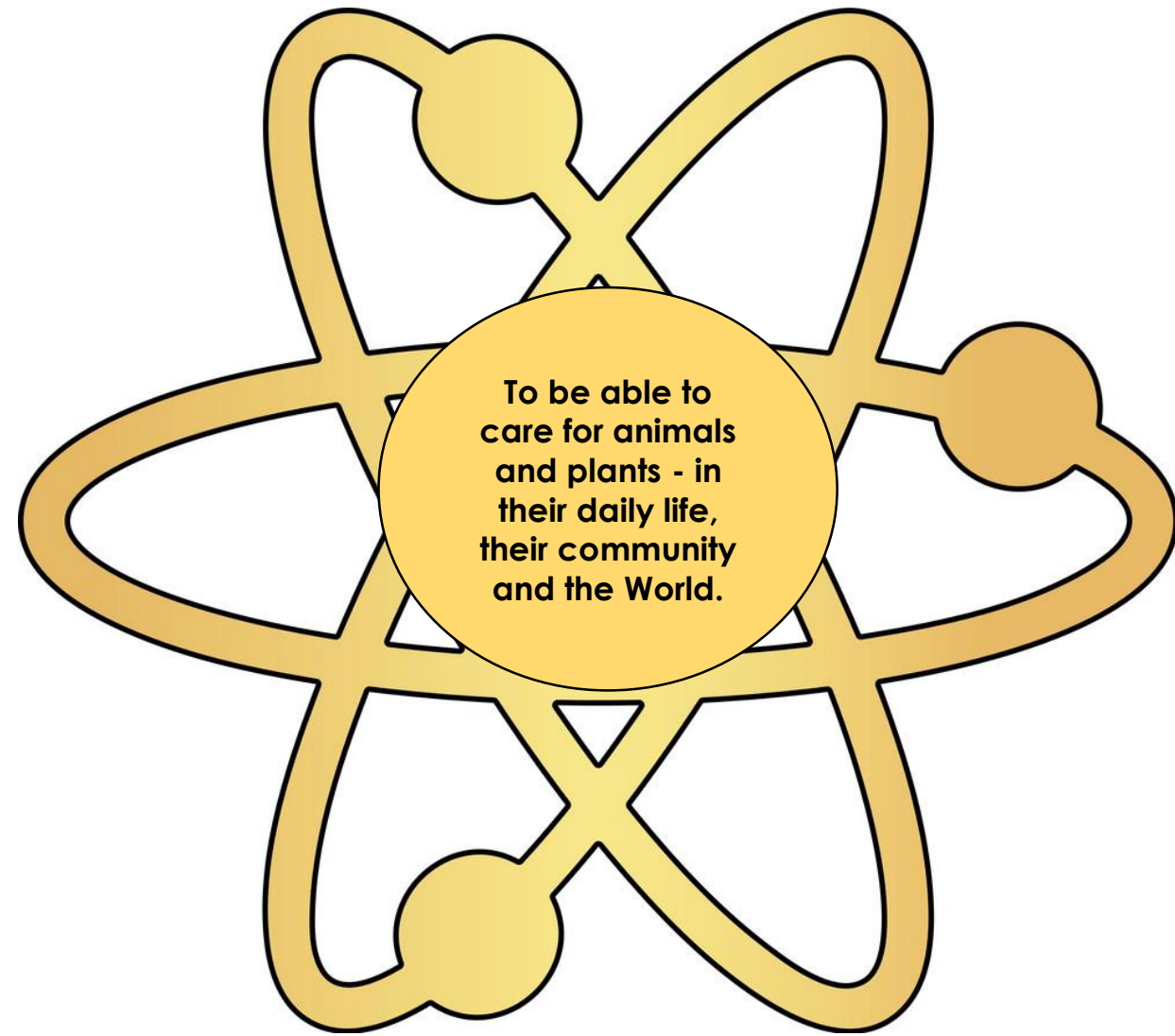
Conscious Connections

Intra-Curricular:

Animals including humans
Earth and Space

Cross Curricular:

Geography
PHSE
Citizenship



- Notices animals in their environment, key characteristics and behaviours (birds in the sky, fly.)
 - Knows some animals are pets - explore how we look after these- what do they need?
 - Explores plants in their environment- what do the plants need?
 - Helps to care for plants and animals
 - Identify differences in plants and animals
 - Explore simple life cycles
 - Begins to understand animals and plants are found in different habitats
- Explore habitats and their differences.
- explore and compare the differences between things that are living, dead, and things that have never been alive
 - Knows what an animal and plant needs for survival- basic needs
 - identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
 - identify and name a variety of plants and animals in their habitats, including micro-habitats
 - describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
 - recognise that living things can be grouped in a variety of ways
 - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
 - recognise that environments can change and that this can sometimes pose dangers to living things.
 - describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
 - describe the life process of reproduction in some plants and animals.
 - describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
 - give reasons for classifying plants and animals based on specific characteristics.

Progression



Plants

Key Vocabulary

Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem, Seeds, Bulbs, Water, Light, Temperature, Growth, Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, fruit, vegetables, wellbeing, sustainability, forests, garden, grass, healthy, 5-a-day.

Conscious Connections

Intra-Curricular:

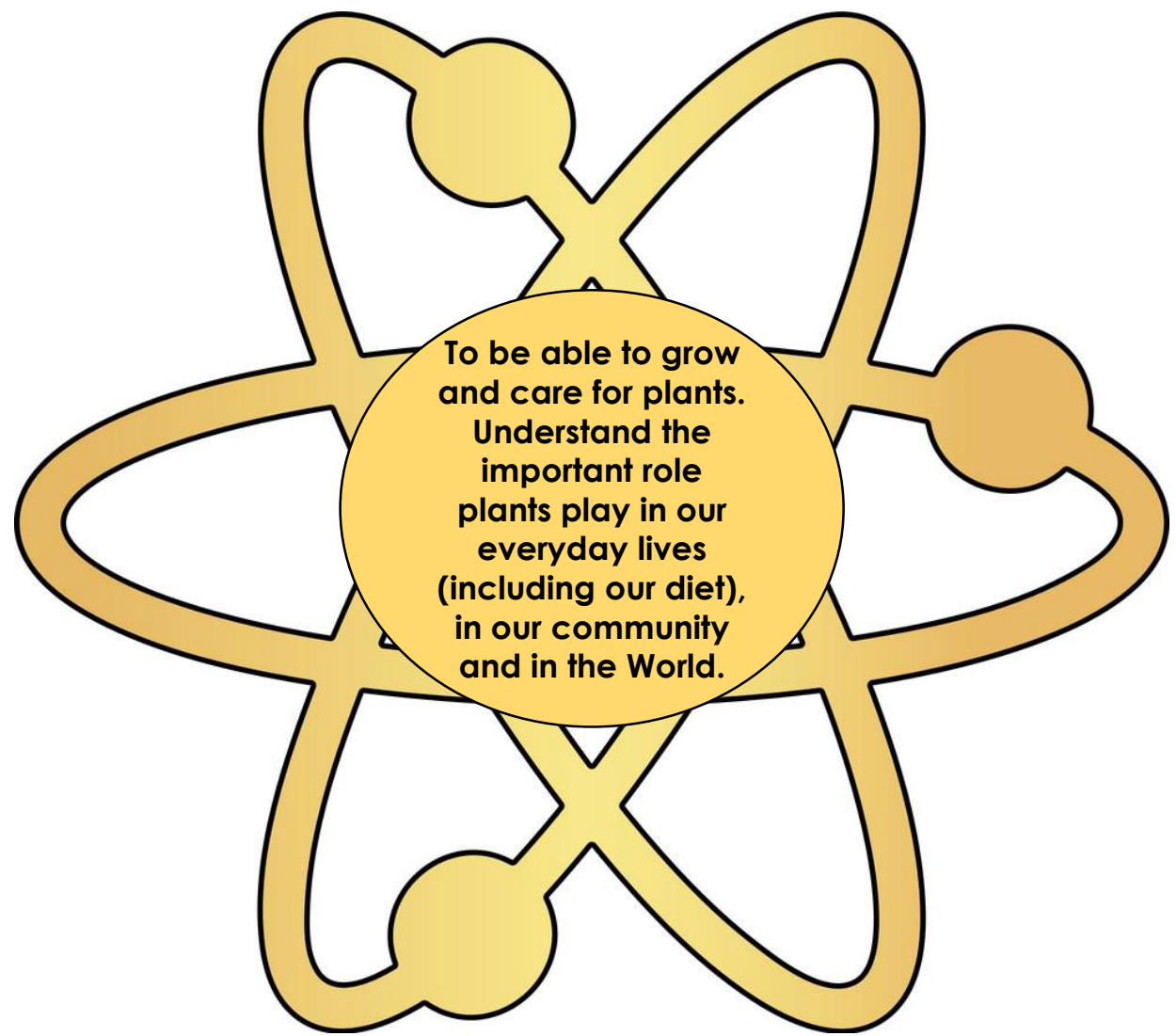
Animals including humans
Earth and Space

Cross Curricular:

Geography
PHSE
Citizenship

Opportunities for Scientific Investigation

Favourite flavours- fruit and veg, growing plants (household and crops), cress heads, plants in different locations, changing colour carnations, conditions for growth.



- Uses senses to explore plants
- Helps to take care for a plant
- Differentiates between flower, trees, grass
- Differentiate between flower, leaf, stem and roots
- Taste edible plants
- Begin to classify fruit and veg.
- Describes attributes of plants.
- Investigate seeds (grow some)
- Knows basic plant parts (flower, stem, trunk, bark, leaves, roots)
- Observes growth in plants
- Investigate conditions for growth.
- Plant life cycle
- Identify plants which we eat and relate this to 5-a-day - identify poisonous plants (common)
- Identify conditions needed for growth in some plants
- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- Knows there are different plants in different parts of the world - explore adaption in some of them
- Understands what would happen to us, animals and the world without plants
- Explore sustainability, greenhouse effect and the importance of plants.
- Understand the part plants can play in wellbeing (mental and physical)
- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Progression



Evolution and Inheritance

Key Vocabulary

Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics, genes, family, similar, different, survival, extinct, dead, alive, past, future, present, natural selection, selective breeding.

Opportunities for Scientific Investigation

Make own fossils, Beak adaption in birds/survival, moths/licorice

Lots of fun investigations here -

(<https://www.empiribox.org/wp-content/uploads/2018/10/Year-6-Evolution-Planning-sample-lesson.pdf>)

Conscious Connections

Intra-Curricular:

Animals including humans

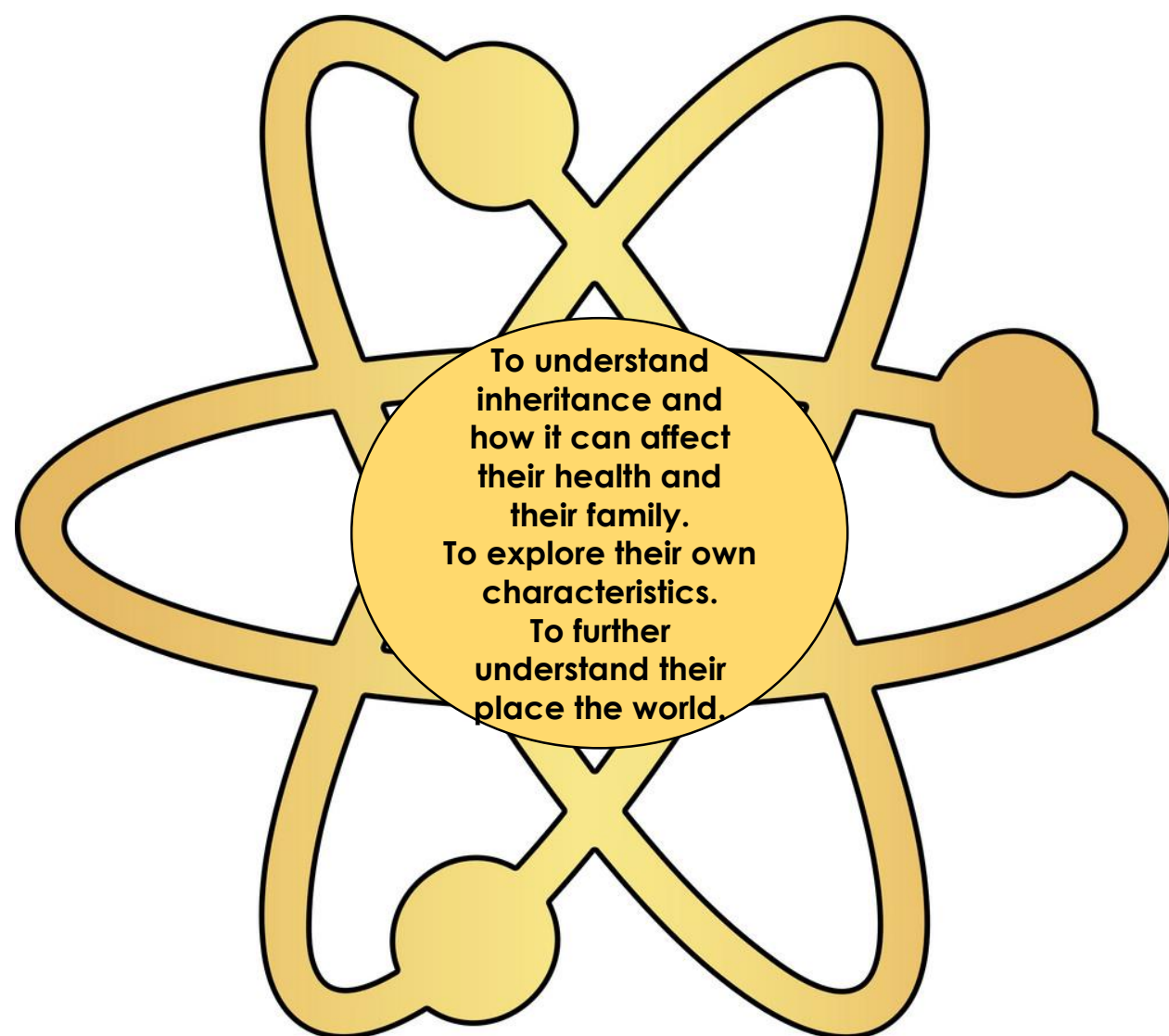
Cross Curricular:

Geography

PHSE

Citizenship

History



- Recognise features of living things
- Recognise change occurs in living things over time
- Understands life cycles in simple animals
- Recognises features of self
- Recognises features are different in others
- Look at photos of family, friends, teachers from past and present
- Explore some families and their 'similar' attributes - understand that people who are related will share features and attributes - inheritance
- Learns about animals of the past and that these have now gone - understand survival and what it means - understand difference between alive / dead
- Handle fossils and look for 'pictures' within them
- Understands that there are different 'times' in history - explore some of them
- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- Explore 'evolution' - identifying changes for survival over time
- Recognise that fossils have taught us about the past
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - include 'genes' and 'genetics'
- Explore genetic conditions and inheritance
- Explore natural selection and selective breeding
- Explore genetic development in today's world (use of DNA in crime scenes, genetic screening etc..)

Progression



Electricity

Key Vocabulary

Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators Forces Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys
Electricity Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts, Cell

Opportunities for Scientific Investigation

Playing with toys / resulting effects, inserting batteries into toys, exploring off/on, exploring results of off/on (movement, sound, heat, noise etc.), sorting batteries, exploring circuits and resulting effects, conductors and insulators investigation, lemon/potato battery investigations, changing a battery

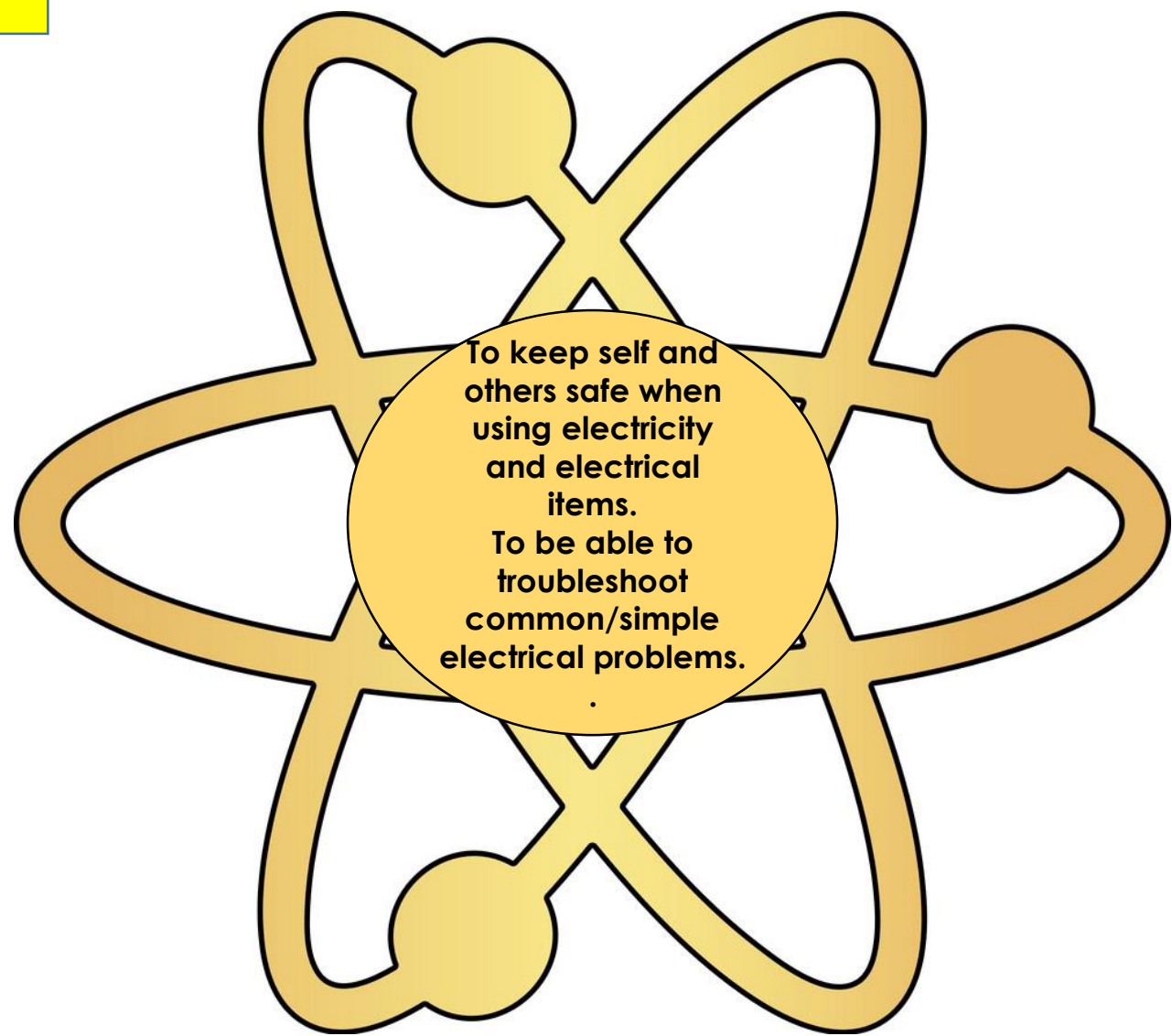
Conscious Connections

Intra-Curricular:

Use of electrical items in science topics/lab

Cross Curricular:

PHSE
Citizenship
Design Technology
Music
Computing



- Respond to objects which emit light, sound and movement
- Understands 'on' 'off' and the resulting effect
- Recognises and handles different size batteries
- Notices differences with/without batteries
- Identify socket and plug and associate them with power
- Know that there are dangers associated with electricity
- Demonstrate understanding and awareness of electrical dangers
- Predicts what will happen when a battery is removed
- identify common appliances that run on electricity
- Sort objects into groups (light/lamp, move/fan, sound/keyboard)
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- Demonstrates an understanding that electricity travels
- Explore where our home electricity comes from (including renewable. Non-renewable energy)
- Know how to keep self safe when using electricity in home
- Know what to do when encounter a simple electrical difficulty
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors.
- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

Progression



Light

Key Vocabulary

Light, Shadows, Mirror, Reflective, Dark, Reflection, Refraction, Reflection, Light, Spectrum, Rainbow, Colour, shadow, natural light, made-light, bulb, transparent, opaque, translucent

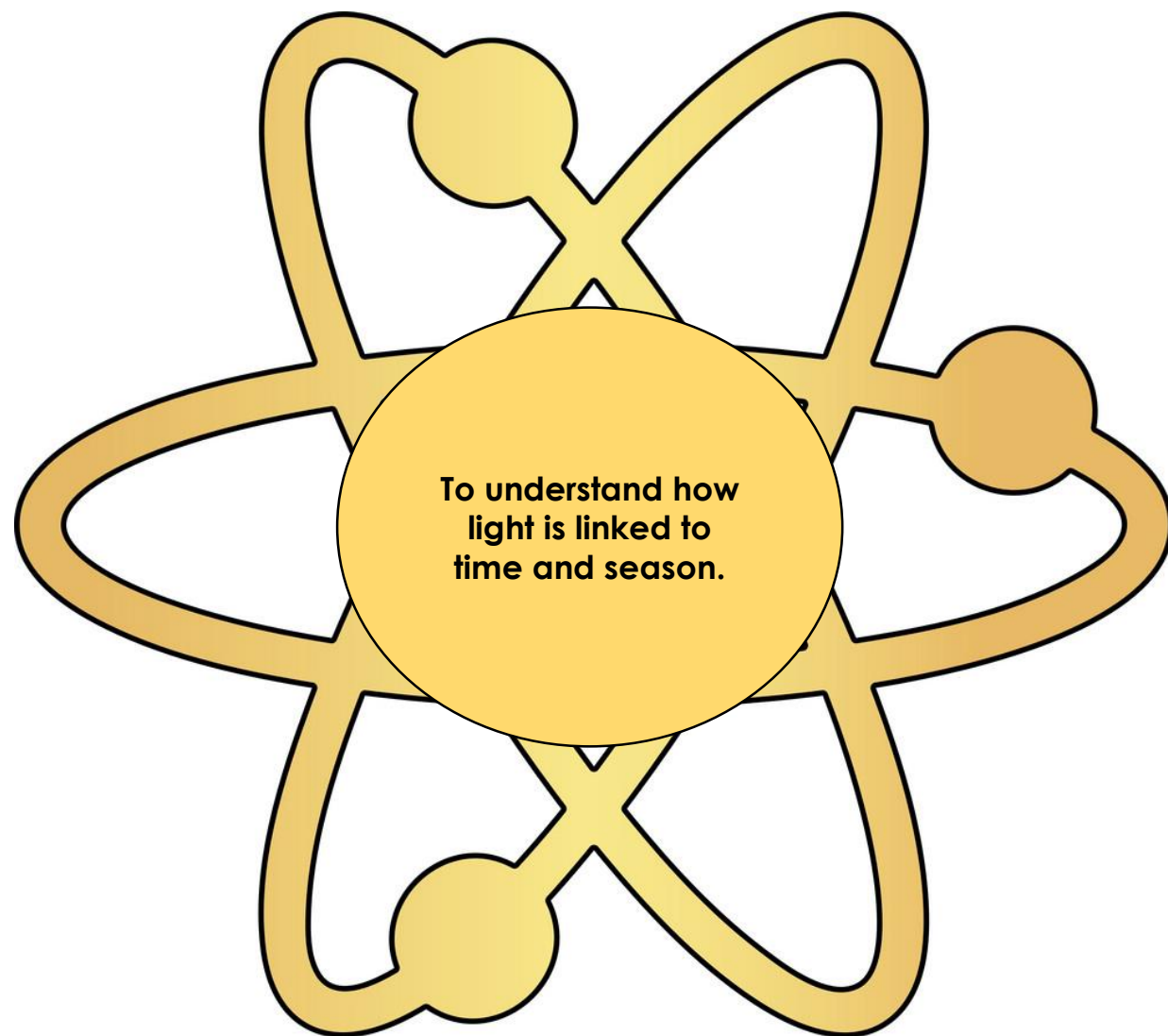
Conscious Connections

Intra-Curricular:

Animals including humans
Electricity
Materials
States of Matter
Animals and their habitats

Cross Curricular:

Art
Design Technology
Computing
PHSE



Opportunities for Scientific Investigation

Reflection investigations, transparent/opaque/translucent investigation, materials hunt, shadow investigation (guess the shadow - predicting/recording), what happens to shadow when...?, <https://www.hamilton-trust.org.uk/science/year-3-science/light-light-and-shadows/>

- Tracks light.
- Knows it is dark when eyes close.
- Knows dark/light.
- Identifies light in immediate environment
- Names sources of light in environment
- Aware of shadows
- Use vocabulary light/dark/shadow
- Identify that we see with eyes.
- Knows what shiny means
- Selects and recognises shiny objects.
- Notices reflections.
- Knows what a reflection is and uses terminology.
- Observes changes in light.
- Creates shadows and manipulates them.
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

Progression

