



Science LTP and Sequence of learning

Science Learning					
	Area of Learning	Exploring the natural and physical world around them	Skills and Knowledge we want the children to have at end of EYFS	ELG The Natural World	FS Vocabulary
FS	<p>Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.</p>	<p>FS1 Notice changes in weather and wear appropriate clothing. Begin to understand the need to respect and care for the natural environment and all living things. Talk about the differences between materials and changes they notice.</p> <p>FS2 Autumn Term Explore the natural world around them. Describe what they see, hear and feel whilst outside. Changing season</p> <p>Spring Term Draw and make observation of the plants and animals Forces they can feel (magnets, water) Changing season Changing matter</p> <p>Summer Term Draw and make observation of the plants and animals Changing season Contrasting environments</p>	<p>We want the children to know for Understanding of the World by the time they leave EYFS and enter Y1:</p> <ol style="list-style-type: none"> 1. Know the town and country they live in (THIS IS GEOGRAPHY) 2. Know the parts of a plant or animal (Science) 3. Know the chronology of their life (HISTORY) 4. Know about a celebration in this country and another country (RE) 	<p>.ELG: The Natural World Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; 15 - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>weather seasons trees branches trunk bark alive dead minibeasts plant leaves bulb water sun stem root flower soil fruit blossom Magnets Attract and repel Materials - texture, appearance, change and strengths float/sink Water pressure Biology</p>

Domains				
Working scientifically	Scientific discipline		Communicate (Tier 3 vocabulary)	
			Theme specific	Subject specific

Year group	Strands						
			Biology	Physics	Chemistry		
Year 1	<p>Exploring living things in our world (biology)</p> <p>Animals groups – carnivores etc. describe and compare Humans – identify, name body parts, senses</p> <p>Animals including humans</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Humans inc animals Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Body, head, hand, arm, foot, leg, chest, neck, face, shoulders, waist, elbow, knee, ankle, wrist, neck, abdomen, sense, sight, sound, touch, taste, smell, hear, see, eye, nose, mouth, tongue, fingers, ears, human, mammals, reptile, amphibian, birds, fish, habitat, claw, hoof, paw, flipper, antlers, horn, tusks, skin, fur, feathers, scales, wings, beak, gills, fin, tentacles, Carnivore, herbivore, omnivore,</p>	<p>KEY STAGE 1 Identify Describe Observe Question Answer Sort Compare Contrast Classify Equipment Data Measurement Patterns Enquiry</p>

	<p>Exploring materials in our world (chemistry)</p> <p>Everyday materials – vocabulary, naming, sorting and grouping PoS1, 2 Everyday materials – physical properties, compare PoS 3,4</p> <p>Materials</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>wood, plastic, glass, metal, water, rock, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, opaque, transparent, properties.</p>
	<p>Exploring living things in our world (biology) (gardening) Plants – identify and name plants. Describe and compare structures</p> <p>Plants</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Humans inc animals Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Plants, flowers, tree, vegetables, fruit, seeds, bulbs, roots, stem, petals, leaves, trunk, branches, deciduous, evergreen, light, water, soil, germinate, germination, seedling, young plant, adult plant.</p>
Year 2	<p>Exploring materials in our world (chemistry) Changing shape – PoS2</p> <p>Materials and their properties</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>material, properties, absorbency, waterproof, strong, weak, hypothesis, pipette, permeable, impermeable, manmade, natural, melting, moulding, cooling, elastic, shape,</p>

						changed, twist/twisting, squash/squashing, bend/bending, stretch/stretching, flexibility, fabric, fair, tear, rip, weight, grams, bar chart, results,
	<p>Exploring living things in our world (biology)</p> <p>Offspring – PoS1 Basic needs – PoS2 Health, eating and hygiene – PoS3</p> <p>Animals including Humans</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>clean, hygiene, food energy, gills, lungs, germs, babies, egg, live young, nutrition, healthy, egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, Egg, caterpillar, pupa (Chrysalis), adult. alter, pupate,</p>
	<p>Exploring living things in our world (biology) (cliff, beach, school) Animals and plants suited to</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>habitat, environment, adaptation, grow, urban, natural, desert, forest, marine, fresh water, grassland, arctic, food chain, energy, bottom of the</p>

	<p>habitat where they live – PoS2 Identify and name plants and animals in habitats – PoS3 Living, dead etc. Simple food chains</p> <p>Living things in habitats</p>					<p>food chain, top of the food chain, ecosystem, micro habitat, evolve, experiment.</p>	
	<p>Exploring living things in our world (biology) (gardening) Seeds and bulbs Simple growing conditions</p> <p>Plants</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>water, light, suitable, temperature, grow, healthy, germination, reproduction, seed, bulbs, healthy, soil, nutrients, leaves, flowers, blossom, petals, fruit, roots, trunk, branches, stem</p>	
Year 3	<p>Exploring materials in our world (chemistry) Compare and group Fossil formation Soils</p> <p>Rocks</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Autumn 1- rock, granite, sandstone, chalk, limestone, marble, slate, soft, crumbly, hard, strong, fair test, acid, geologist, fossil. organism, sediment, sedimentary,</p>	<p>KEY STAGE 2 Prediction Conclusion Evidence Explanation Diagram Systematic Comparative test Fair test Construct Interpret</p>

<p>Link to Inventors - Mary Anning</p>					<p>igneous, metamorphic, extinct, minerals, crust, core.</p>	<p>Accurate Variables Causal relationships Improve Precision Quantitative</p>
<p>Exploring living things in our world (biology) Nutrition Skeletons and muscles Animals including humans</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Autumn 2-photosynthesis , chlorophyll, chloroplasts, carbon dioxide, grains, vegetables, fruits, protein, oils, nutrients, vitamins, minerals, fibre, saturated fats, unsaturated fats, carbohydrates, skeleton, vertebrates, invertebrates, exoskeleton, endoskeleton, hydrostatic skeleton, bones, joines, muscles, tendons, voluntary and involuntary movement.</p>	
<p>Exploring the influence/impact of forces on our world (physics) Movement on different surfaces</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Spring 1-force, push, pull, friction, motion, magnet, compass, magnetic field, north pole, south pole, repel, electrons,</p>	

<p>Contract forces Magnetic and non-magnetic Poles</p> <p>Forces (including magnetic forces)</p>					<p>neutrons, iron, steel, nickel, cobalt, protons, atoms, attract, electromagnet.</p>	
<p>Exploring living things in our world (biology) Parts and function Conditions for growth Water transportation Life cycle</p> <p>Plants (gardening)</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Spring 2- stem, flower, leaves, roots, anchor, seeds, food, transport, holds, carries, water, flowers, nutrients, leaves, absorb, sunlight, prediction, conclusion, movement, respiration, growth, reproduction, excretion, nutrition, sensitivity, water transportation, investigation, germination, growing and flowering, fertilisation and seed formation, seed dispersal.</p>	
<p>Exploring the influence/impact</p>	<p>Ask questions Predict Observe Investigate</p>	<p>Plants Animals inc Humans Living things and their habitats</p>	<p>Electricity Forces Seasonal changes Light</p>	<p>Materials Rocks States of matter</p>	<p>Summer- light, darkness, white light, UV rays, sclera,</p>	

	<p>of forces on our world (physics) Need light to see Darkness is absence of light Shadows when light is blocked Patterns in shadow change</p> <p>Light and seeing</p>	<p>Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Evolution and inheritance</p>	<p>Sound Earth and space</p>		<p>iris, cornea, pupil, lens, conjunctiva, vitreous, choroid, optic nerve, macula, retina, light reflection, refraction, ozone layer, shadows, reflections, equator, infrared, ultraviolet, transparent, opaque, translucent.</p>	
Year 4	<p>Exploring living things in our world (biology) (School environment, improving habitats: wormery, bug house, bee house etc.) Living things can be grouped Classification keys Environments change</p> <p>Living things and their habitats</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Producer, unique, vertebrate, mammal, habitat, ecosystem, food chain, energy, consumer, snails, fish, birds, worms, movement, respiration, sensitivity, growth, reproduction</p>	

<p>Exploring the influence/impact of forces on our world (physics)</p> <p>Vibration Sounds travel Patterns in pitch and volume</p> <p>Sound</p> <p>Link to Inventors - Alexander Graham Bell</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, high, low</p>
<p>Exploring materials in our world (chemistry)</p> <p>Reversible change Heating and cooling Water cycle Compare and group solids, liquids and gases</p> <p>Changes of state</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>solid liquid gas state melting boiling evaporation condensation water cycle temperature thermometer degrees celsius</p>
<p>Exploring the influence/impact</p>	<p>Ask questions Predict Observe</p>	<p>Plants Animals inc Humans Living things and their</p>	<p>Electricity Forces Seasonal changes</p>	<p>Materials Rocks States of matter</p>	<p>Circuit Wires Bulbs</p>

<p>of forces on our world (physics)</p> <p>Appliances Simple circuits Conductors and insulators</p> <p>Electricity</p>	<p>Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>habitats Evolution and inheritance</p>	<p>Light Sound Earth and space</p>		<p>Buzzer Series Battery Insulator Conductor Metals Brightness Voltage Cells Components Symbols</p>
<p>Exploring living things in our world (biology)</p> <p>Describe functions of digestive systems – PoS1 Identify different teeth and functions – PoS2 Construct and interpret food chains – PoS 3</p> <p>Animals including humans</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>human digestive system mouth tongue-mixes , moistens, saliva teeth: incisors-cutting, slicing canines-ripping, tearing molars-chewing, grinding oesophagus transports stomach acid enzymes small</p>

						intestine large intestine carnivore herbivore omnivore brush floss food chain Sun producers prey predators
	Exploring the influence/impact of forces on our world (physics) Inventors	Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate	Plants Animals inc Humans Living things and their habitats Evolution and inheritance	Electricity Forces Seasonal changes Light Sound Earth and space	Materials Rocks States of matter	Invention, inventor, electricity, paleontologists, fossils, astronomer, scientist, experiment, audiometer, aeronautics, hydrofoil, telephone, telescope, telegraph, morse code, patent
Year 5	Exploring the influence/impact of forces on our world (physics)	Ask questions Predict Observe Investigate Identify, classify and group Measure	Plants Animals inc Humans Living things and their habitats Evolution and inheritance	Electricity Forces Seasonal changes Light Sound Earth and space	Materials Rocks States of matter	support, fall, Earth, gravity, air resistance, friction, balancing force, weight,

<p>Gravity, friction, air and water resistance Levers, pulleys and gears – PoS 1, 2, 3</p> <p>Forces</p>	<p>Record and Present Interpret and conclude Evaluate</p>				<p>newtons, resistance force, moving surfaces, accuracy, precision, casual relationships, mechanisms, levers, pulleys, transfers, gears, friction resistance force, support/refute, water resistance</p>
<p>Exploring the influence/impact of forces on our world (physics) Movement of Earth in the solar system Movement of moon Earth's rotation – day and night</p> <p>Earth and space</p> <p>Link to Inventors - Galileo</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Earth, Sun, Moon, moon, planets, star, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, dwarf planet, movement, rotate, orbit, axis, celestial body, spherical, sphere, day, night, light, heat, eclipse, satellite, universe, solar, astronomer, shadow clock, sundial, geocentric model, heliocentric model, revolve, spin, atmosphere, Alhazen, Copernicus, first quarter, full moon, Galileo,</p>

						illuminate, new moon, phase, third quarter
	<p>Exploring materials in our world (chemistry) Using knowledge of solid, liquid and gases to separate mixtures – PoS 3 Reversible change, irreversible change - PoS 5, 6</p> <p>Properties and changes of materials</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Properties, materials, grouping, classifying, permeability, absorbency, hardness, solubility, transparency, conductivity (electrical & thermal), magnets, Insulator, conductor, thermal, heat, temperature, fair test, variables, solid, liquid, gas, dissolve, mixture, soluble, reversible, irreversible, chemical changes, reactant, product, carbon dioxide, solution, evaporation, magnetism, filtration, sieving</p>
	<p>Exploring living things in our world (biology) Life cycles – human changes as they develop – PoS 1, 2</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Scatter & line graphs, bar charts, causal relationships, support/refute, gestation, life cycle, sperm, egg, foetus, correlation, scientific</p>

	<p>Animals including humans</p>					<p>diagram, support/refute, foetus, development, nutrition, uterus, baby, child, growth, comparison, development, centile, healthy, adolescence, adolescent, puberty, teenager, reproduction, penis, scrotum, sperm, testicles, genitals, childhood, erection, babyhood, period, wet dream, pubic hair, ejaculation, menarche, pregnancy, uterus/womb, masturbation, sperm, clitoris, foreskin, contraception, vagina, menstruation</p>	
	<p>Exploring living things in our world (biology) Life cycles – animal Reproduction Living things in their habitats</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Sexual, asexual, reproduction, gamete, cell, pollen, ovule, fusion, fertilisation, pollination, cuttings, roots, male, female, sperm, ovum, penis, vagina, fertilise, pregnancy,</p>	

						<p>gestation, montreme, marsupials, placentals, young, family tree, chimpanzee, life cycle, endangered, extinct, metamorphosis, amphibian, insect, transform, larvae, pupa, nymph, egg, albumen, germinal disc, chalaza, shall membranes, shell, yolk, embryo, reproduce</p>
Year 6	<p>Exploring living things in our world (biology) Classification according to observable characteristics Giving reasons for classification</p> <p>Living things and habitats</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Carl Linnaeus Kingdoms Multi-cellular Animals Plants Fungi Protists Prokaryotes Phylum Class Order Family Genus Species</p>
	<p>Exploring living things in our world (biology) Identify and</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Circulatory Oxygenated blood Deoxygenated blood Atria</p>

<p>name circulatory system Diet, drugs and exercise Nutrient and water transportation</p> <p>Animals including humans</p>	<p>Record and Present Interpret and conclude Evaluate</p>				<p>Left atrium Right atrium Left ventricle Right ventricle Valves Red blood cells White blood cells Platelets Plasma Pulmonary artery Pulmonary veins Arteries Veins Capillaries Diffusion Osmosis Recreational drugs Cigarettes Alcohol Ethanol Nutrients</p>	
<p>Exploring living things in our world (biology) Fossils Offspring and variation Adaption may lead to evolution (Museums in a Box - Hull Museums (Fossils))</p> <p>Evolution and inheritance</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Evolution Charles Darwin Alfred Wallace Mary Anning Environment Adaptation Offspring Characteristics Fossils Adaptive traits Inherited traits Habitats Variation Natural selection Human intervention</p>	

<p>Exploring the influence/impact of forces on our world (physics)</p> <p>How voltage affects brightness of bulb etc. Give reasons for changes to circuit e.g. brightness of bulbs Using symbols to represent circuit</p> <p>Electricity</p> <p>Link to Inventors - Benjamin Frnaklin</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Voltage Battery Cell Switch Circuit Series circuit Motor Bulb Buzzer Symbol Component Resistance Electrons Amps Current Thomas Edison Nikola Tesla</p>	
<p>Exploring the influence/impact of forces on our world (physics)</p> <p>Light travels in straight lines How we see Light sources Shadows</p> <p>Light</p>	<p>Ask questions Predict Observe Investigate Identify, classify and group Measure Record and Present Interpret and conclude Evaluate</p>	<p>Plants Animals inc Humans Living things and their habitats Evolution and inheritance</p>	<p>Electricity Forces Seasonal changes Light Sound Earth and space</p>	<p>Materials Rocks States of matter</p>	<p>Shadows Sun Colours Rainbows Light sources Surfaces Reflect Incident ray Reflected ray The law of reflection Refraction Visible spectrum</p>	

						Prism Transparent Translucent Opaque Isaac Newton	
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