Year : 3	Term : 1	Topic : Moving Monsters	
Learning Objectives (What will the children learn?)	**Class Activities** (What will the children do?)	**Resources** (What will I need?)	**Assessment** (Opportunities)
Investigative, Disassembly and Evaluative Activities (IDEAs)			
Children will learn: • how air pressure can be used to produce and control movement; • formulate more complex questions for experts/visiting speakers; **(Progression in Design Skills R4) (XL Wales)** • techniques for making simple pneumatic systems; • to compare the effectiveness of different systems; **(Progression in Design Skills E2)** • to use appropriate vocabulary to describe how things work; • Use search engines to discover relevant websites to analyse the information to extract what is relevant; **(Progression in design skills R3)**	• Show the children familiar objects that use air to make them work *e.g. recorder, whistle, bicycle pump, balloon, inflatable swimming aids, foot pump, coiled party blowers. What does the air do? How has it been used in the design of these products?* • Construct a simple pneumatic system by joining a balloon to 5mm tubing and then to a washing-up liquid bottle. Encourage the children to investigate: – *What happens to the air when you squeeze the bottle?* – *What happens when you let go?* – *What happens if you put fabric over the balloon and then squeeze the bottle?* – *Can you lift a book with the balloon?* • Make a class collection of images of monsters for the children to refer to – real, fictional, scary or friendly, human, animal or alien. • Construct an alternative pneumatic system by joining two syringes with a piece of plastic tubing. Ask questions to help children investigate *eg What happens when the plunger of one syringe is pressed in?* Compare the two systems and discuss their similarities and differences. (Note: take care as the plunger may come out with force!) • Collect some small creatures *eg ladybirds, woodlice and caterpillars* and examine their bodies and legs using viewers and/or magnifying glasses. • Collect toy or model animals and creatures. Discuss how they have been made, in particular, how the colouring, markings and texture of the body parts have been replicated.	▪ examples of products that use air e.*g. pneumatic toys, foot pump for inflating items, balloon pump.*	Can the children: • explain how simple pneumatic systems work using appropriate vocabulary; • describe techniques for making simple pneumatic systems; • discuss how products have been made, and how models replicate real-life features?

Year : 3	Term : 1	Topic : Moving Monsters	
Learning Objectives (What will the children learn?)	**Class Activities** (What will the children do?)	**Resources** (What will I need?)	**Assessment** (Opportunities)
Focused Practical Tasks (FPTs)			
Children will learn: • how to assemble simple pneumatic systems • ways of fixing components • ways of using pneumatic systems in conjunction with simple levers to control movement • to explore ideas through 3D modelling	• Demonstrate techniques for assembling the two pneumatic systems used in the IDEAs. • Show children how balloons or syringes can be used in conjunction with simple levers to control movement *eg* – *place the balloon in a small box with a lid so that when inflated it raises the lid* – *use a card hinge to attach one of the syringes to a lever so that it can raise and lower the lever* – *explore the effect of moving the syringe closer to or further from the pivot point* • Provide children with components for making pneumatic systems, construction kits, pieces of card and plastic sheet with temporary fixings *eg masking tape.* Ask them to make a pneumatic system and explore using it with the other materials to make something move. Discuss the outcomes and highlight good ideas and solutions to any problems encountered.	▪ washing-up liquid bottles, 5mm diameter plastic tubing, balloons, sterile syringes • construction kits • suitable reclaimed materials, card, plastic sheet • materials for finishing *eg coloured papers, paint, papier mâché, fabric, foil* • PVA glue, masking tape, parcel tape, lower temperature glue gun, pipe-cleaners scissors, snips.	Can the children: • construct effective pneumatic systems; • describe techniques for fixing components; • investigate ways of using their pneumatic systems with other materials to control movement?
Design and Make Assignment (DMA)			
Children will learn: • to work as a team; • to choose an idea according to logistical constraints of materials, time, size; • to think about their ideas as they make progress and be willing to change things if this helps them to improve their work; • to plan through discussion; • to work safely and accurately with a range of simple hand tools; • to use a storyboard to record the sequence of their work;	• Give the children the following design brief: **design and make a moving monster:** ➢ Incorporating a pneumatic system • Explain to the children the task, including constraints *eg time, size and materials* and the individual children's design input on aspects of the monster. • Discuss with the children who the monster is for. *What does it have to do?* • Discuss with the children possible ideas for moving parts *eg moving wings, opening and closing mouth* and for ways of making *eg using reclaimed materials for the structure.*		Can the children: • apply what they have learnt through IDEAs/FPTs in their designing and making; • work together on an appropriate idea generated through brainstorming and discussion of the constraints;

Year : 3	Term : 1	Topic : Moving Monsters	
Learning Objectives (What will the children learn?)	**Class Activities** (What will the children do?)	**Resources** (What will I need?)	**Assessment** (Opportunities)
▪ Produce a simple sequence of drawings to show a process. **(Progression in Design Skills DR3)** ▪ to evaluate as a team the product and purpose of improvements	• Organise the children into small teams and ask them to brainstorm ideas, recording them in words and sketches. *What could you do? How could you do this? What do you need to know? What does this product need to do?* • Ask each team to evaluate their ideas, choose one and explain how they are going to make it. *How could you do this? What could you use? What will it look like?* • Ask each team to produce a list of the materials and tools they expect to use. *What will you need? Where will you work? Who will do what? What will you need to do first?* • At certain stages, gather the children together to talk about their work so far, what they need to do next and share successful techniques and good ideas. • During the work, ask the children to evaluate how they went about their work and the strengths and weaknesses of the finished product. • Ask them to record their work in storyboard form showing how they made their monster.		• plan the stages of their work and record these at the end of the project in a storyboard • work safely and accurately with a range of simple hand tools; • evaluate their product as a team and suggest improvements?