

DESIGN AND TECHNOLOGY DEPARTMENT SCHEMES OF WORK

PROJECT: BUG / BIRD HOTEL (RM)

YEAR: KS3 (7)

OVERALL AIM: To design and make a wooden bug / bird hotel.



	Intent				Implement		Impact	
Lesson No	Concept	Resources	Learning objective	Starter activity	Learning activities	Possible differentiation activities	AFL	Suggested links with school learning policies (Literacy, Numeracy, SMSC)
1 (50 mins)	Introduction to bug project.	Bug Hotel PP. Pupil PP. One touch screen.	To know how to research and use the information to support design development.	Show the following two starter videos: Bugs life trailer: https://www.youtu be.com/watch?v= cXWRAb84TTE How to make a bug hotel: https://www.youtu be.com/watch?v= 5-7UhxaXgSc	 Get pupils to save Pupil PP into their own areas. PA of 4 bug hotels. 	Potential to produce individual research.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – Bug house dimensions Literacy – New subject specific terminology (Brief, Research, materials) Reading – Research on existing products. SMSC – Moral issue of helping bugs.
2 (50 mins)	Develop a specification to identify the products function.	Bug Hotel PP. Pupil PP. One touch screen.	To know how to research and use the information to support design development.	Show the website: http://www.wildab outgardens.org.uk/ thingstodo/inawee kend/bug- mansion.aspx	Research into types of bugs.Design specification	Potential to produce individual research.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – Bug house dimensions Literacy – New subject specific terminology (Brief, Research, materials) Reading - Research on insects and materials. SMSC – Moral issue of helping bugs.
3 (50 mins)	Design the Bug hotel, through annotated sketches / digital modelling.	Bug Hotel PP. Pupil PP. One touch screen.	To use the research to create and develop design ideas.	Show examples of previous students work.	 Produce hand drawn version of bug hotel. And / Or Use Techsoft 2D templates to help develop ideas 	Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including selfassessment of lesson progress	Numeracy – Product dimensions. Literacy – New subject specific terminology (Creativity, demonstrate, graphics and quality) SMSC -
4 (50 mins)	Start product manufacture	Bug Hotel PP. Pupil PP. One touch screen. Hand tools. MRAT: 073, 179	To be able to identify and know how use tools, equipment, and materials to manufacture the bug hotel.	Demonstrate tools and discuss / recap workshop H&S. Panel saw Sandpaper Files	Start manufacture of bug hotel.	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Moral – use of recycled materials DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf

5 (50 mins)	Continue Manufacture of Bug hotel	Bug Hotel PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083	To be able to identify and know how use tools, equipment and materials to manufacture the bug hotel.	Demonstrate tools and discuss workshop H&S. Panel saw Sanding disc Sandpaper Files	Continue manufacture of the bug hotel.	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Moral – use of recycled materials DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf
6 (50 mins)	Continue Manufacture of Bug hotel	Bug Hotel PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083	To be able to identify and know how use tools, equipment, and materials to manufacture the bug hotel.	Demonstrate tools and discuss workshop H&S Panel saw Sanding disc Sandpaper Files	Continue manufacture of the bug hotel.	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Moral – use of recycled materials DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf
7 (50 mins)	Continue Manufacture of Bug hotel	Bug Hotel PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083, 039	To be able to identify and know how use tools, equipment, and materials to manufacture the bug hotel.	Demonstrate tools and discuss workshop H&S. Tenon saw Panel saw Sanding disc Sandpaper Files Pillar drill Hammer	Continue manufacture of the bug hotel.	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Moral – use of recycled materials DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf
8 (50 mins)	Finish manufacture of bug hotel	Bug Hotel PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To be able to identify and know how use tools, equipment, and materials to manufacture the bug hotel.	Demonstrate tools and discuss workshop H&S. Pillar drill Hammer	 Finish manufacture of the bug hotel. Write up the manufacturing diary. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) Reading – Self-edit manufacturing diary SMSC – Moral – use of recycled materials DT RA

		MRAT: 179, 039								CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf
9 (50 mins)	project	Bug Hotel PP. Pupil PP. Completed bug hotel	To self-reflect on the success of your bug hotel.	Q & A - Why evaluation is important?	•	Individual evaluation Comparison against specification. Peer evaluation Self-reflection	Varying levels o	f self-reflection.	Peer and self- assessment as well as teacher comments	Numeracy Literacy – New subject specific terminology (Evaluation and specifications) Reading – Self-edit evaluation / peer assess SMSC – Moral – use of recycled materials



High Close School

DESIGN AND TECHNOLOGY DEPARTMENT SCHEMES OF WORK

PROJECT : E-Picture (Vacuum forming / Electronics)

YEAR : KS3 (7)

OVERALL AIM: To design and make an electronic picture.



	Intent				Implement		Impact	
Lesson No	Concept	Resources	Learning objective	Starter activity	Learning activities	Possible differentiation activities	AFL	Suggested links with school learning policies (Literacy, Numeracy, SMSC)
1 (50 mins)	Introduction to the electronic picture.	E-Picture PP. Pupil PP. One touch screen. MDF base 10mm pine frame	To understand what a design brief is and how the frame is made.	Things to look out for in the e-folio.	 Get pupils to save Pupil PP into their own areas. Read through design brief. Cut, shape and make the frame. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – Frame dimensions Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Designing for a purpose.
2 (50 mins)	Create a range of designs for the e-picture.	E-picture PP. Pupil PP. One touch screen. Card. Scissors. Laser Cutter.	To learn how to design your card picture image.	Revisit techniques from previous lesson. Show examples of design layouts.	 Create design ideas. Plan layout for design. Cut out and stick the design onto the MDF base. 	Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – Layout of designs / battery Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Designing for a purpose.
3 (50 mins)	Complete making a range of designs for the e-picture.	E-picture PP. Pupil PP. One touch screen. Card. Scissors. Laser Cutter.	To learn how to design your card picture image.	Creating a card mould.	 Create design ideas. Cut out and stick the design onto the MDF base. 	Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – Layout of designs / battery Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Designing for a purpose.
4 (50 mins)	To understand the vacuum forming process.	E-picture PP. Pupil PP. One touch screen. HDPE Vacuum former	To understand how the vacuum forming process works and what products can be made.	Show examples of previous students work.	 To use the vacuum former to create the mould. Write an instruction guide on how to use the vacuum former. Cut out the mould and sand the edges. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including selfassessment of lesson progress	Numeracy – Product dimensions. Literacy – New subject specific terminology (Creativity, demonstrate, graphics and quality) SMSC – Designing for a purpose.
5 (50 mins)	Continue manufacture of electronic picture.	E-picture PP. Pupil PP. One touch screen. HDPE Vacuum former	To understand how the vacuum forming process works and what products can be made.	Revisit vacuum forming process.	 To use the vacuum former to create the mould. Write an instruction guide on how to use the vacuum former. Cut out the mould and sand the edges. Begin to write the manufacturing diary 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including selfassessment of lesson progress	Numeracy – Product dimensions. Literacy – New subject specific terminology (Creativity, demonstrate, graphics and quality) SMSC – Designing for a purpose.
6 (50 mins)	Continue manufacture of electronic picture.	E-picture PP. Pupil PP. One touch screen.	To understand what electronic components are	What is a circuit? Components and symbols used in the circuit.	Identify symbols in the circuit.	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources)

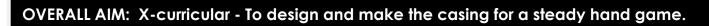
		Soldering iron Solder LED's Battery connector	·		•	Mark out the LED holes and use the pillar drill to make the holes. Hot glue the LED's in place. Solder the circuit. Continue the manufacturing diary.			progress. Individual skills can be assessed.	SMSC – Designing for a purpose.
7 (50 mins)	Continue manufacture of electronic picture.	E-picture PP. Pupil PP. One touch screen. Soldering iron Solder LED's Battery connector	To understand what electronic components are and how we will use them. To understand how to solder safely	What is a circuit? Components and symbols used in the circuit.	•	Hot glue the LED's in place. Solder and test the circuit. Complete the manufacturing diary. Design a soldering health and safety poster.	•	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Designing for a purpose.
8 (50 mins)	Evaluation of project success	E-picture PP. Pupil PP. One touch screen.	To self-reflect on the success of your E-Picture.	Q & A - Why evaluation is important?	•	Complete designing a soldering health and safety poster. Individual evaluation Peer evaluation Self-reflection	•	Varying levels of self-reflection.	Peer and self- assessment as well as teacher comments	Numeracy – Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Designing for a purpose.



DESIGN AND TECHNOLOGY DEPARTMENT SCHEMES OF WORK

PROJECT: Steady Hand Game (RM / Vacuum forming)

YEAR: KS3 (7)





	Intent				Implement		Impact	
Lesson No	Concept	Resources	Learning objective	Starter activity	Learning activities	Possible differentiation activities	AFL	Suggested links with school learning policies (Literacy, Numeracy, SMSC)
1 (50 mins)	Introduction to the steady hand game.	Steady Hand Game PP. Pupil PP. One touch screen.	To research existing steady hand games.	Show examples of previous steady hand games. Discuss cross-curricular project.	 Open assignment in TEAMS. Read through the L.O. Use the internet to research existing steady hand games. State what you like and dislike about each design. Explain how the game works. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – dimensions of hand game Literacy – Revisit subject specific terminology (Research, existing) SMSC – Designing for a purpose.
2 (50 mins)	To revisit vacuum forming and make the wooden mould for the base.	Steady Hand Game PP. Pupil PP. One touch screen. MRAT: 073, 083, 162	To understand how to make the casing for the game.	Revisit vacuum forming technique.	 Measure out and cut the base to the correct size. Glue and clamp the pieces together. Once dry, use the sanding disc, rasp, or file to taper the sides of the base. 	Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – dimensions of base Literacy – New subject specific terminology (Orthographic, taper, PVA) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-073-Hand-Saws-for-Wood.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-083-Belt-Bobbin-and-Disc- Sanders.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-162-Adhesives-used-in-Art.pdf
3 (50 mins)	Continue making the wooden mould and begin design work.	Steady Hand Game PP. Pupil PP. One touch screen. MRAT: 073, 083, 162	To understand and interpret the design through an orthographic drawing.	Revisit last lesson, what is tapering and why do we use it when vacuum forming?	 Read through the L.O. Discuss orthographic drawing and how it relates to the design. Q & A personalisation / design work. Continue tapering the sides using the sanding disc, rasp, or file. Begin design work. 	Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including www/ebi after specifications.	Numeracy – dimensions of base Literacy – New subject specific terminology (Orthographic, taper, PVA) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-073-Hand-Saws-for-Wood.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-083-Belt-Bobbin-and-Disc- Sanders.pdf

4 (50 mins)	Revisit and develop design work ready for vacuum forming.	Steady Hand Game PP. Pupil PP. One touch screen. Laser Cutter Scissors Card PVA MRAT: 032, 011, 162	To know how to create personalised designs for the base.	Show examples of previous students work. Revisit previous vacuum forming design work.	 Continue or begin design work for the base. Identify the chosen design. Using either the laser cutter or scissors cut and stick the design on the base using PVA. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	https://dt.cleapss.org.uk/Resource- File/MRAT-162-Adhesives-used-in-Art.pdf Numeracy – Design dimensions. Literacy – New subject specific terminology (Design, personalised, favourite) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-032-Laser-Cutters.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-011-Craft-Knives-Scalpels-and- Scissors.pdf
5 (50 mins)	Revisit the vacuum forming process.	Steady Hand Game PP. Pupil PP. One touch screen. HDPE Vacuum former Moulds MRAT: 062, 011,	To revisit and practice using the vacuum former	Q & A – vacuum forming, previous projects / key steps. H & S to consider.	 To use the vacuum former to create the mould. Cut out the mould and sand the edges. Write out at least 5 H & S points to follow when using the vacuum former. Begin to write the manufacturing diary. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	https://dt.cleapss.org.uk/Resource- File/MRAT-162-Adhesives-used-in-Art.pdf Numeracy – Dimensions of thermoplastic / mould. Literacy – New subject specific terminology (Vacuum former, thermoplastic) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-062-Plastics-Vacuum-and- Pressure-Forming-Equipment.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-011-Craft-Knives-Scalpels-and- Scissors.pdf#
6 (50 mins)	Continue manufacture of the casing for the steady hand game.	Steady Hand Game PP. Pupil PP. One touch screen. Drill 3mm drill bit Copper wire Hama beads MRAT: 011, 039, 075, 003	To use tools and equipment accurately and safely to make the steady hand game	Q & A previous lesson. Demonstrate securing the wire and making a handle.	 Cut out the mould and sand the edges. Mark out the holes for the wire drill using a hand drill. Measure out wire, and shape. Secure Hama beads in place with hot glue. Add the wire and secure. Cut a piece of dowelling for the wooden handle. Clamp and drill a hole in the handle for wire. Continue to write the manufacturing diary. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, equipment, materials) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-011-Craft-Knives-Scalpels-and- Scissors.pdf# https://dt.cleapss.org.uk/Resource- File/MRAT-039-Pillar-and-Bench-Drilling- Machines.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-075-Portable-Power-Drills-for- Wood.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-003-Hot-Melt-Glue-Guns.pdf

7	Continue	Steady Hand	To use took and	O 8 A previous	Cut out the mould and	Individual YP will be making	Individual	Numeracy - Marking out of materials and
7 (50 mins)	Continue manufacture of the casing for the steady hand game.	Steady Hand Game PP. Pupil PP. One touch screen. Drill 3mm drill bit Copper wire Hama beads MRAT: 011, 039, 075, 003	To use tools and equipment accurately and safely to make the steady hand game	Q & A previous lesson. Demonstrate securing the wire and making a handle.	 Cut out the mould and sand the edges. Mark out the holes for the wire drill using a hand drill. Measure out wire, and shape. Secure Hama beads in place with hot glue. Add the wire and secure. Cut a piece of dowelling for the wooden handle. Clamp and drill a hole in the handle for wire. Continue to write the manufacturing diary. 	Individual YP will be making their product allowing teacher support and stretch for more able students.	photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, equipment, materials) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-011-Craft-Knives-Scalpels-and- Scissors.pdf# https://dt.cleapss.org.uk/Resource- File/MRAT-039-Pillar-and-Bench-Drilling- Machines.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-075-Portable-Power-Drills-for- Wood.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-003-Hot-Melt-Glue-Guns.pdf
8 (50 mins)	Evaluation of project success	Steady Hand Game PP. Pupil PP. One touch screen. Drill 3mm drill bit Copper wire Hama beads MRAT: 011, 039, 075, 003	Self-reflect and peer assess the success of the steady hand game.	Q & A - Why evaluation is important?	 Complete making the casing. Complete the manufacturing diary. Individual evaluation Peer evaluation Self-reflection 	Varying levels of self-reflection.	Peer and self- assessment as well as teacher comments	Numeracy – Literacy – New subject specific terminology (Self-reflect, peer assess) SMSC – Designing for a purpose. DT RA CLEAPPS: https://dt.cleapss.org.uk/Resource- File/MRAT-011-Craft-Knives-Scalpels-and- Scissors.pdf# https://dt.cleapss.org.uk/Resource- File/MRAT-039-Pillar-and-Bench-Drilling- Machines.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-075-Portable-Power-Drills-for- Wood.pdf https://dt.cleapss.org.uk/Resource- File/MRAT-003-Hot-Melt-Glue-Guns.pdf