

**East Renfrewshire Council: Education Department
Practitioner Moderation Template**



Prior to the moderation exercise, please complete the following information and submit it to your facilitator with assessment evidence from one learner that you judge to have successfully attained the Es' and Os'.

Experiences and Outcomes:

I can extend my use of manual and digital graphic techniques to realise ideas, concepts and products and recognise the importance of real world standards.

TCH 4-11a

I can continue to recall number facts quickly and use them accurately when making calculations.

MNU 3-03b

I am investigating different careers/occupations, ways of working, and learning and training paths. I am gaining experience that helps me recognise the relevance of my learning, skills and interests to my future life.

HWB 2-20a

Learning Intentions:

- To understand where to use various modelling techniques whilst 3D modelling.
- To understand how to plan for future 3D modelling exercises.
- To understand the difference between a Part and an Assembly file.
- To understand how to use constraints and assembly tools to ensure an object is assembled quickly and correctly.
- To understand the need for drawing templates.
- To understand how to create a drawing template on inventor.
- To understand the need for production drawings.
- To understand how to create a production drawings.
- To understand how to add decals to the part files.
- To understand the effective use of environments in a 3D modelling package.

Success Criteria:

- To use extrude and revolve correctly to create the legs and head of a mini figure.
- To use loft correctly to create the body of a mini figure.
- To create modelling plans for the leg, head and body.
- Place all parts of your Lego Mini Figure into an assembly.
- To use three constraints on each part to ensure parts are completely fixed.
- To use the "Mirror" command to place duplicate parts.
- To recall the key pieces of information that are required in a production drawing.
- To create a border for your own template.
- To create a title block appropriate for school projects.
- To produce three orthographic views of your assembled and parts of your Lego figure, including a section and detail view.
- To fully annotate using dimensions, centre lines and appropriate text.
- Be able to produce an assembled isometric, perspective, exploded isometric views of your assembled Lego figure.
- To fully annotate using labels, appropriate text, parts list and balloons.
- Successfully adding decals to the body and head of your Lego figure.
- Effectively adding the Lego figure to an environment and making it look realistic by making adjustments to shadow, reflection and lighting.

Briefly outline the context and range of quality learning experiences that have been provided making reference to the chosen design principles.

The Lego Figure Project is designed to experience new 3D modelling skills and consolidate the skills the pupils' have gained/developed in the smaller projects throughout S1/2. Although the project is mostly teacher led to enable pupils to gain new skills, personalisation and choice is given at various stages throughout the whole process. The activities planned to take account of the experiences and outcomes include:

- Class discussions relating to starter questions demonstrating the importance and relevance of Production Drawings.
- Learn and use various techniques when completing a 3D Model and how to use them both correctly and efficiently:
 1. Extrude - correct procedure and terminology
 2. Revolve - correct procedure and terminology
 3. Loft - correct procedure and terminology
- Understand the correct method to record modelling plans retrospectively so that information is full and would enable someone else to make the object.
- Learn and use techniques for assembling a 3D model, ensuring it can be used to create production drawings:
 1. Placing parts in to an assembly – correct procedure and terminology and taking parts from a stored area on the server
 2. Using constraints in the correct manner – mate & flush, recognising the need for three constraints to lock an item into place.
 3. Using Assembling Modelling edits to help with the production and speed in creating an assembled model – Mirror tool.
- Class discussions relating to starter questions in order to identify what information should be found on a title block in Production drawings.
- Creating a template page for use in producing Production Drawings:
 1. Create an individual border which will present the information in the correct manner.
 2. Create a title block which displays all relevant information to BSi standards.
- Creating production drawings, which are fully annotated with dimensions, centre lines and titles to BSi standards:
 1. Orthographic Production Drawing – Assembled and Parts, including a section and appropriate detail view.
 2. Pictorial Production Drawing – Isometric, Perspective & Exploded (with appropriate parts list and balloons on view.
- Learn and create how to apply decals onto both the head and body of Lego Figure. Pupils will get the chance to choose a style appropriate to them and will gain vital experience in working multiplatform between 3D Modelling, Web Browser and Illustration packages in order to make their design personal to them.
- Learn and create rendered views in order to make Lego Figures look as realistic as possible, both on a blank area and set within an appropriate scene:
 1. Lego Figure should be scaled and position appropriately to suit the scene.
 2. Materials and colours should be added to suit theme.
 3. Shadows and reflections should be added to suit background image so that it looks like it's part of the original picture.

Record the range of assessment evidence that was gathered to meet the success criteria (Say, Write, Make, and Do) considering breadth, challenge and application.

SAY:

- Formative assessment in listening to the class discussions relating to real life and previously learned skills in order to gauge class understanding.
- Use appropriate questioning to identify individuals understanding of real life situations and previously learned skills. Use a reflection session at end of each period to allow pupils to voice areas of concern or weakness (small class, where all are open and honest about their understanding).

WRITE:

- Formative assessment in the creation of Model Plans, feeding back areas that are missed, where terminology used isn't correct.
- Pupils were given the chance to self-assess the quality of their own work by looking at an exemplar Model Plan which had been completed to the correct standard. Discussion took place between teacher and pupil in order to identify next steps.

MAKE:

- Formative assessment throughout whole process where teacher checks progress on screen pointing out where things need to be changed.
- In terms of production drawings, pupils self and peer assessed these by using the information on the relevant success criteria for that period.
- In terms of final renders, formative assessment was used to check these were as realistic as possible and were set in scene in a correct manner.

DO:

- Throughout the whole process pupils will be observed and information will be recorded on a spreadsheet in a traffic light style (green for meeting all points on success criteria, orange for meeting most points on success criteria and red for only part meeting a few points on success criteria).
- This traffic lighting will help decide whether a pupil has achieved, progressing well or making progress in this particular area.

NOTE – As this is the first time pupils have gone through the whole process it is highly unlikely that anyone will achieve at Level 4. The process will be repeated again with another object, where pupils will be expected to work more independently.

Briefly outline the oral/written feedback given to the pupil on progress and next steps, referring to the learning intention and success criteria.

- Each period teacher spread sheet was filled in with relation to individual Success Criteria, Learning Intentions are more generic so can't be checked at this point until pupils undertake individual style project using the same approach.
- As class is small each pupil had strengths and areas for development discussed on a one to one basis throughout each period.
- Each pupil is given a feedback table recoding their strengths and areas of development which have been colour coded to allow quick access to information.
- For the rendered page, pupils were awarded a green, orange or red for the following things:
 1. Use of multiple packages to create an effective individual face for head decal
 2. Use of multiple packages to create an effective individual t-shirt design for body.
 3. Creating a realistic rendered scene, making sure both scale, positioning and shadows are correct.

Pupil Voice:

What have you learned? How did you learn? What skills have you developed?

- I have learned how to use Extrude, Revolve and Loft in the correct manner making use of "quick keys" in order to speed the process up.
- I have learned how to record the completion of a 3D model in a plan format so that anyone can reproduce it paying particular attention to using the correct terminology, e.g. Subtract for Cutting
- I have learned the importance of Production Drawings and completing them to BSi standards so that objects can be manufactured correctly.
- I understand how to assemble an object making sure to use 3 constraints in order to lock pieces into place.
- I understand how to place views onto a Production drawing making sure they are appropriately scaled and in correct positions.
- I know what to add to a drawing in terms of annotation, e.g. dimensions, centre lines and view titles, to allow manufacture to take place.
- I know how to use Photoshop to manipulate existing graphics in order to suit a personal need before using the decal command in 3D modelling software.
- I know how to manipulate a 3D model to the correct scale and position to a given background to enable a realistic render of my Lego Figure.
- I learned through a combination of teacher led demonstrations and trial and error using skills that I had learned both in previous years and throughout this project.

Did the learner successfully attain the outcomes? **YES/NO**

Although some success criteria parts have been marked "Amber" there is sufficient evidence that the pupils understand the process. This gives the pupils involved the breadth required, in order to achieve the depth the process will require to be completed again so that pupils get the chance to complete tasks independently making use of the feedback given throughout relating to individual areas for development.

NAME - ██████████

UNIT - Lego Figure

FEEDBACK - 3D Model & Plan

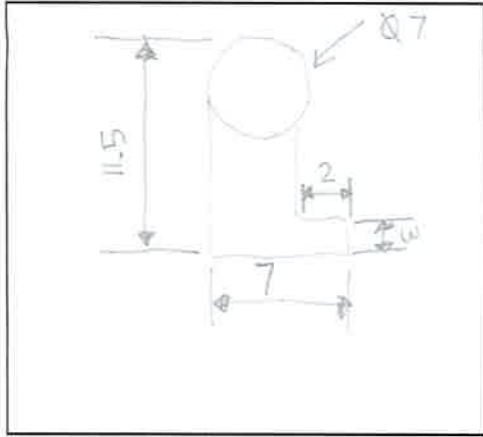
| Outcome | Areas of Strengths | Areas for Development | Outcome |
|-------------------|---|--|----------------------|
| Extrude & Revolve | Used quick keys to aid with speed, correct use of terminology during question & answer sessions. | Continue to use correct terminology and quick keys when producing 3D items. | YES |
| Loft | Used work planes, sketches and project geometry correctly. Correct use of terminology during question & answer sessions. | Continue to use work planes, sketches and project geometry when completing items using the Loft command. | YES |
| Model Plan | Use of sketch & comments for first few stages. Correct use of terminology during question & answer sessions. | Aim to get these finished in time and before a 3D model is made in future. | NO - ran out of time |
| Constrain | Used Mate and Flush correctly making sure each component has three constraints to lock in to place. Could describe easily what the difference is between each constraint during question & answer sessions. | Continue to use three constraints when attaching parts together making sure flush and mate are used appropriately. | YES |
| Mirror | Used work plane and correct components to create completed Lego Figure. Could explain the process of mirroring a part during question & answer sessions. | Continue to use work planes in the correct place in order to mirror components. | YES |

OVERALL COMMENT - Overall pass, worked completely independently with no assistance from teacher.

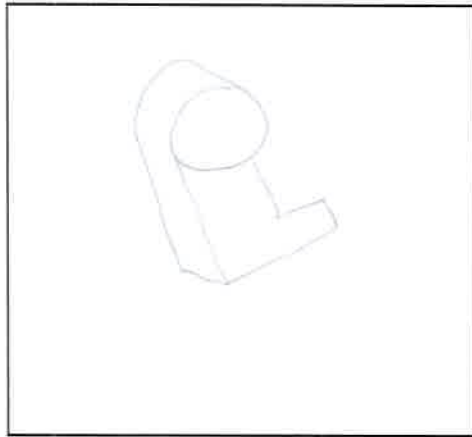
3D Modelling

Project: Lego man

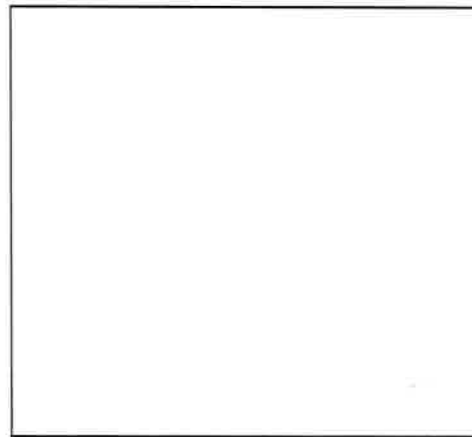
Name: [Redacted] Class: _____



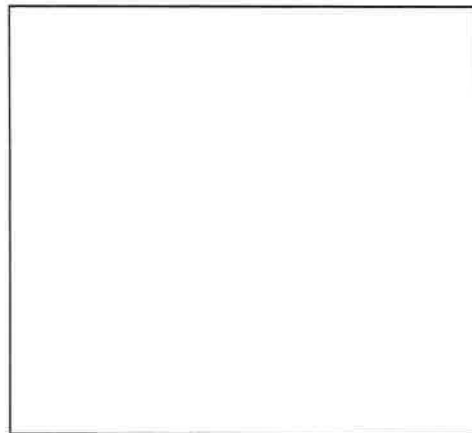
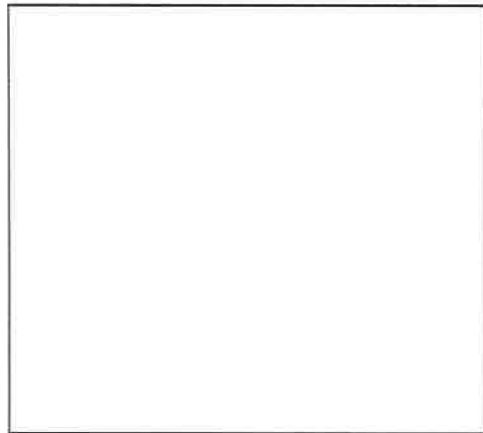
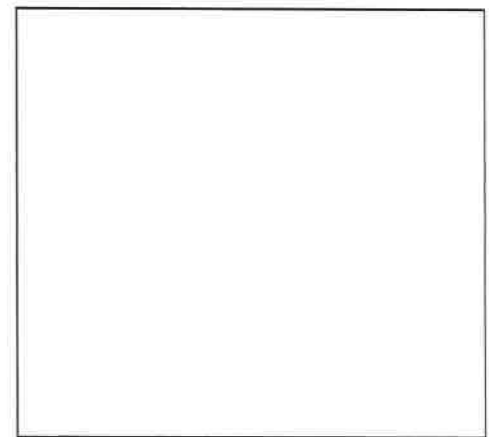
Shape above
Sketch Dimensions



Extrude By 7mm



Shell to thickness
of 1mm



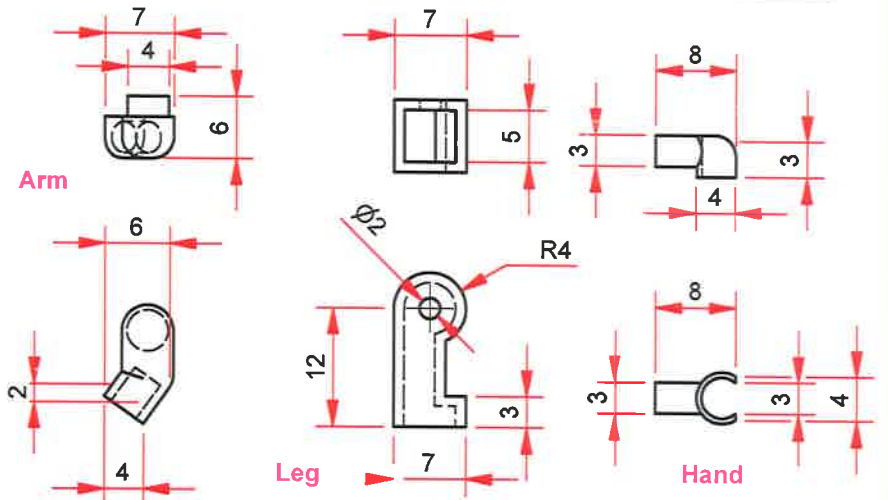
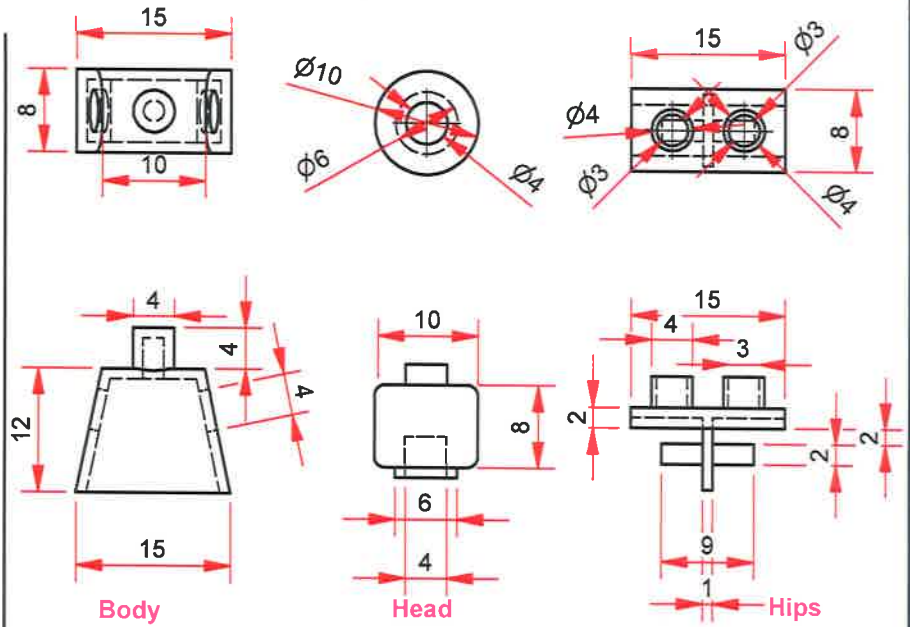
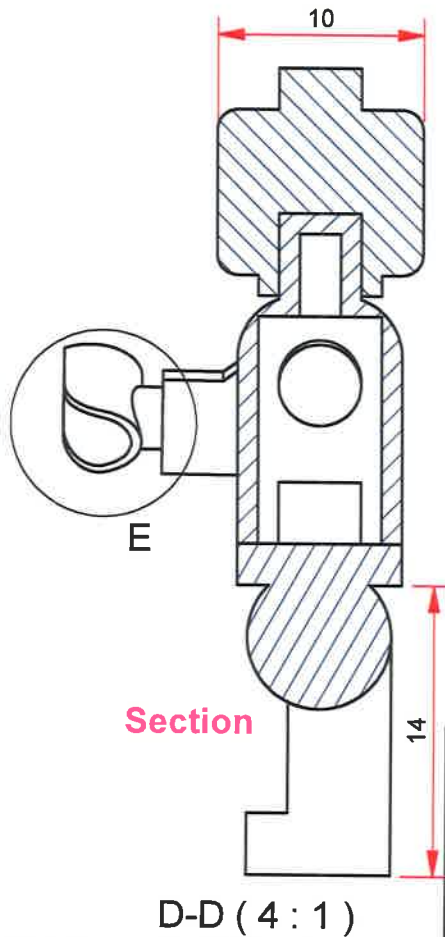
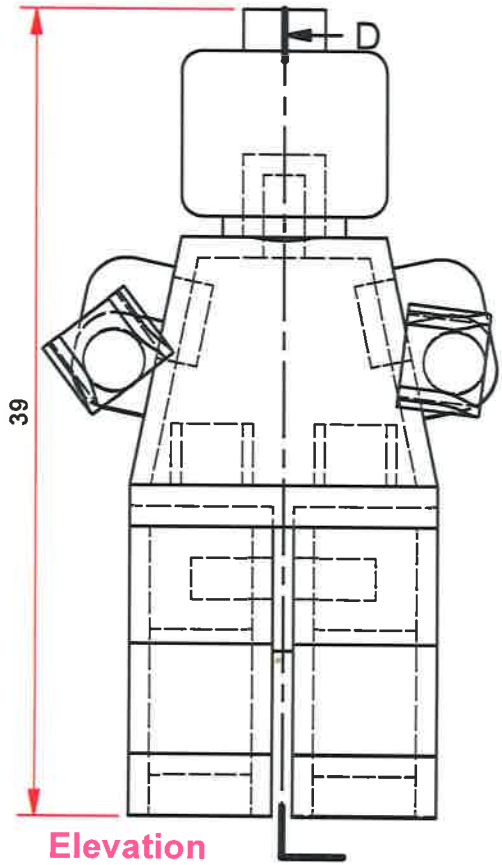
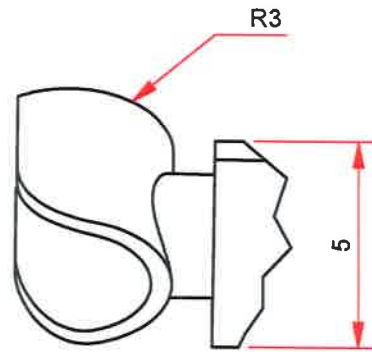
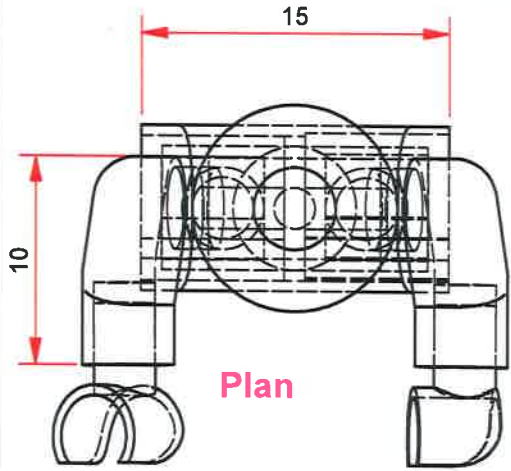
NAME - Alex Cuthbertson

UNIT - Lego Figure

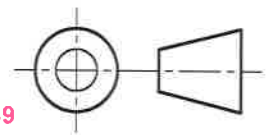
FEEDBACK - Production Drawings

| Outcome | Areas of Strengths | Areas for Development | Outcome Achieved? |
|-----------------------------------|--|---|-------------------|
| Ortho Template | Own border created, with title box that includes space for all relevant information. | Missing drawing title and scale is wrong. | YES |
| Ortho Production - Views | All views placed correctly and appropriate to item produced. Detail view gives more information on dimensions. Section shows different parts and materials. | Continue to use place views to project other views. Continue careful consideration for extra views. | YES |
| Ortho Production - Annotation | Dimensions given on all relevant views, another person would be able to create this object from the information given. | Watch view title positioning and make sure you include all scales. No centre lines included, make sure you add these to all circular views. | ALMOST |
| Pictorial Production - Views | Views rotated correctly to appropriate type. | Continue to rotate views correctly. Remember to remove "exploded lines" from exploded isometric. | YES |
| Pictorial Production - Annotation | All view titles are correct with parts list and balloons to help identify parts. You also remembered to remove the third angle projection symbol, well done :) | Make sure you only display relevant columns, I would have removed the description section or changed it to material. | YES |

OVERALL COMMENT - Overall pass, worked completely independently with no assistance from teacher.



DOB: 16/04/2003 SQA: [redacted]
DRAWING 1 SCALE: 1.1 TEACHER: Mrs Allan
DRAWING TITLE:
EASTWOOD HIGHSCHOOL CENTRE NUMBER: 8601739



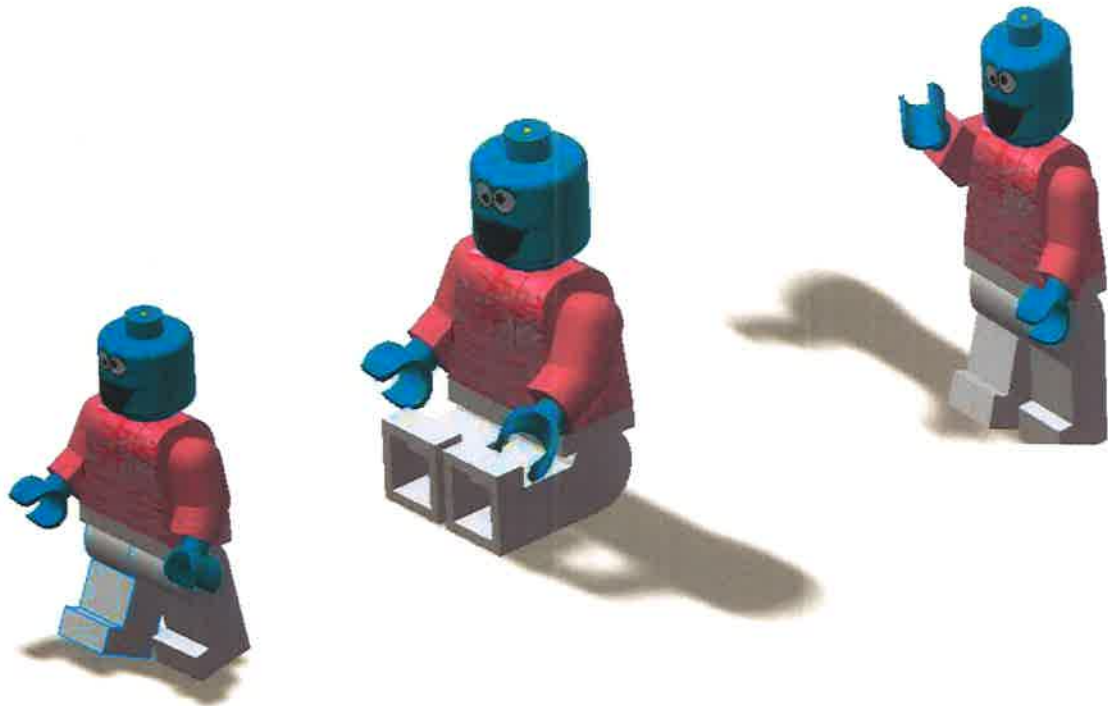
NAME - ~~XXXXXXXXXX~~

UNIT - Lego Figure

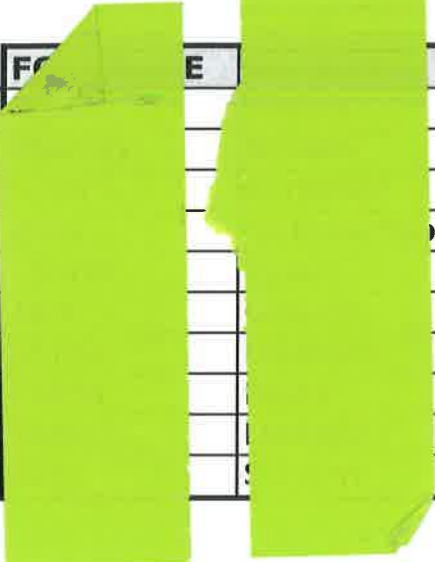
FEEDBACK - Render

| Outcome | Areas of Strengths | Areas for Development | Outcome Achieved? |
|--|---|---|-------------------|
| Quality of Decal on Head | Face is scaled to correct size and wraps around the head effectively. | Continue to make use of work planes to allow decals for curved surfaces. | YES |
| Image Manipulation for Head Decal | Use of Photoshop and "mask" tool in Inventor to remove background to allow material to show through. | Next time try to make your own image rather than use an image from the internet. | YES |
| Quality of Decal on Body | T-Shirt decal has been applied to body effectively and matches in with the other colours on the body. | Continue to make use of flat surfaces or work planes to allow the correct application of decals. | YES |
| Image Manipulation for Body Decal | Use of Photoshop to create own T-Shirt design. Colour matching and cropping of an existing image were used. | Continue to make use of multiple pieces of software to create effective renders. | YES |
| Scene Render - Image Scaled Correctly | On each of the three pictures of your Lego Figure in the scene you have suitable scaled and positioned to make it look like they are part of the scene. | Continue to make use of the zoom and pan commands in Inventor to allow manipulation of 3D models to fit in an existing scene. | YES |
| Scene Render - Correct Materials & Colours | Like the fact you've colour matched to the head and body. | Try using more materials, it's difficult to see what each material is. | ALMOST |
| Scene Render - Shadows & Reflections Correct | Good use of shadows especially in scene, I can see that these have been manipulated to make it look like figure belongs in scene. Well done :) | Continue to make use of shadows and edit them to suit a given scene. | YES |

OVERALL COMMENT - Overall pass, worked completely independently with no assistance from teacher.



| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 3D MODEL | | | PRODUCT DRAW | | | | RENDER | | | | | OVERALL ACHIEVEMENT | COMMENTS | |
|---|---|---|---|---|---|---|---|---|----|-------------------|------|------------|--------------|--------|----------------|--------------------------|-------------------------------|------------------------------|-----------------------------------|--------------------------|-----------------------------------|---------------------|--|--|
| | | | | | | | | | | EXTRUDE & REVOLVE | LOFT | MODEL PLAN | CONSTRAIN | MIRROR | ORTHO TEMPLATE | ORTHO PRODUCTION - VIEWS | ORTHO PRODUCTION - ANNOTATION | PICTORIAL PRODUCTION - VIEWS | PICTORIAL PRODUCTION - ANNOTATION | QUALITY OF DECAL ON HEAD | IMAGE MANIPULATION FOR HEAD DECAL | | | QUALITY OF DECAL ON BODY |
| | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve | |
| | | | | | | | | | | | | | | | | | | | | | | | 4M | Making progress at Level 4, needs to complete additional tasks |
| | | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve |
| | | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve |
| | | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve |
| | | | | | | | | | | | | | | | | | | | | | | | 4M | Absent so missed bulk of project, needs time to complete tasks |
| | | | | | | | | | | | | | | | | | | | | | | | 4M | Making progress at Level 4, needs to complete additional tasks |
| | | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve |
| | | | | | | | | | | | | | | | | | | | | | | | 4P | Progressing well at Level 4, consolidation required to fully achieve |
| | | | | | | | | | | | | | | | | | | | | | | | 4M | Absent so missed bulk of project, needs time to complete tasks |



didn't get time to finish

S.C. 1 - TO USE EXTRUDE & REVOLVE CORRECTLY.

✓ - CHECKED ON MODEL TREE & QUESTION & ANSWER SESSION DURING NEXT CLASS.

S.C. 2 - TO USE LOFT CORRECTLY.

✓ - CHECKED ON MODEL TREE & QUESTION & ANSWER SESSION DURING NEXT CLASS.

S.C. 3 - TO CREATE MODELLING PLANS.

X - PAPER EVIDENCE NOT COMPLETED AS RAN OUT OF TIME.

S.C. 7 - RECALL INFO FROM DRAW.

✓ - CHECKED THROUGH QUESTION & ANSWER DURING STARTER ACTIVITY.

S.C. 8 - CREATE BORDER ORTHO TEMP

✓ - BORDER CREATED AS SHOWN ON SHEET.

S.C. 9 - CREATE TITLE BLOCK ORTHO TEMP

✗ - LACKING DRAWING TITLE & SCALE

IS WORKING BUT DURING NOT RECORDED

PENALISED FOR THIS.

S.C. 12 - PICTORIALS → ISO, PERS, EXP

✓ - ALL PICTORIAL VIEWS REPRESENTED CORRECTLY AS SHOWN ON SHEET.

S.C. 13 - FULL ANNOTATION

✓ - ALL ANNOTATION INCLUDED ON SHEET, INCLUDING REMOVAL OF THIRD ANGLE SYMBOL.

S.C. 4 - PLACE PARTS IN ASSY

✓ COMPLETELY INDEPENDENT - EVIDENCE TAKEN FROM VISUAL ON SCREEN.

S.C. 5 - USE THREE CONSTRAINTS

✓ COMPLETELY INDEPENDENT - EVIDENCE TAKEN FROM SCREEN, MODEL TREE & QUESTION & ANSWER SESSION DURING NEXT CLASS.

S.C. 6 - USE MIRROR CORRECTLY

✓ - COMPLETELY INDEPENDENT - EVIDENCE TAKEN FROM MODEL TREE & QUESTION & ANSWER SESSION DURING NEXT CLASS.

S.C. 10 - THREE VIEWS ASSY + PARTS,

SECTION + DETAIL.

✓ - ORTHO VIEWS SHOWN ON SHEET, BOTH ASSY + PARTS - RELEVANT DETAIL + SECTION INCLUDED.

S.C. 11 - FULL ANNOTATION

✗ - LACKING CENTRE LINES & POSITIONING OF VIEW TYPES ISN'T ALWAYS CORRECT. NOT ALL SECTIONS ARE INCLUDED.