

MYP TECHNOLOGY YEAR 2.

STEADY HAND GAME PROJECT STEADY ON!

[INFORMATION] [SYSTEMS]

UNIT QUESTION:

CAN LEARNING TO READ AND WRITE BE FUN? DOES 'FUN' MAKE FOR BETTER LEARNING?

SIGNIFICANT CONCEPTS: TECHNOLOGY ENHANCES TEACHING AND LEARNING BY ENGAGING STUDENTS.

CONTEXT:

LEARNING THE ALPHABET AND PHONETICS IS CRUCIAL FOR ALL CHILDREN AS THEY ENTER PRIMARY SCHOOL. IT CAN BE PARTICULARLY CHALLENGING FOR CHILDREN FROM NON-ENGLISH SPEAKING BACKGROUNDS.

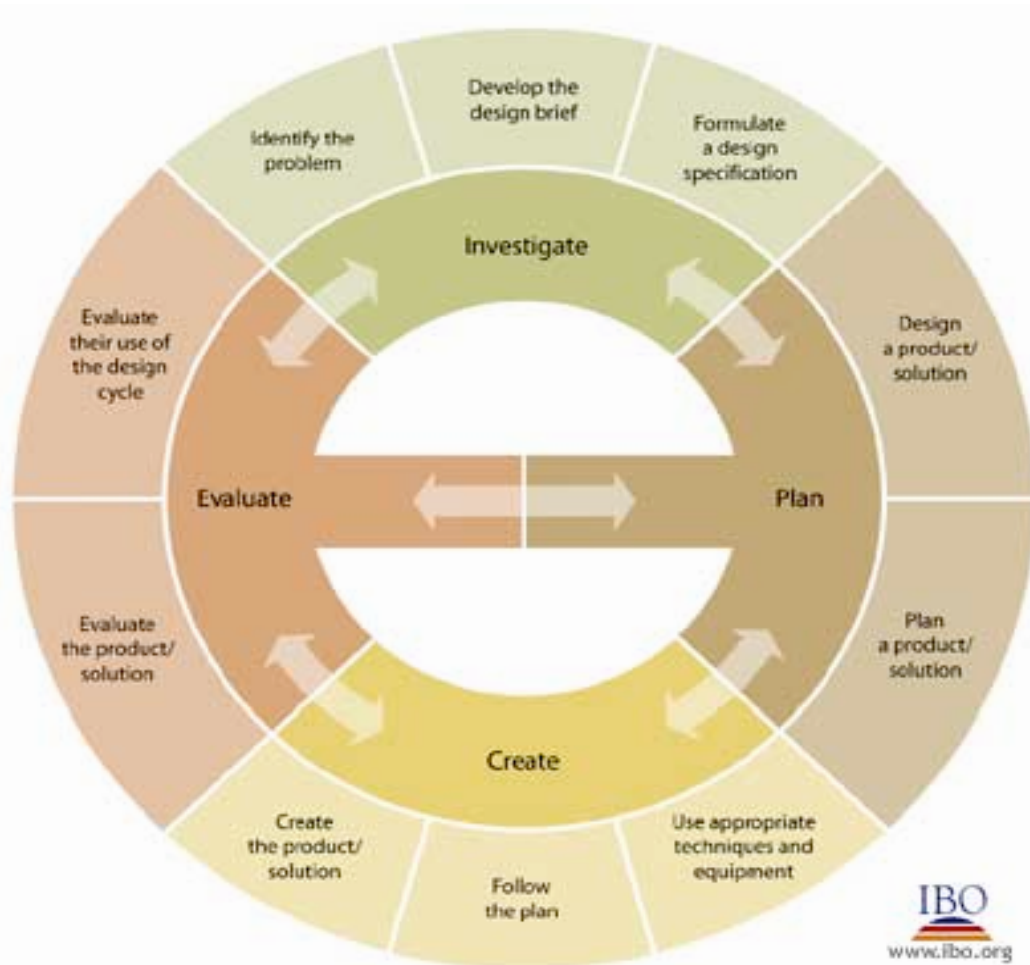
TASK: YOUR CHALLENGE IS TO DESIGN AND MAKE A BUZZING TYPE STEADY HAND GAME TO BE USED AS AN EDUCATIONAL TOY TO HELP KINDERGARTEN CHILDREN LEARN TO READ.

AREAS OF INTERACTION:	STUDENT LEARNING EXPECTATIONS. (SLE)
ATL	<i>THINKING:</i> PROBLEM SOLVING <i>ORGANISATION:</i> PROJECT MANAGEMENT SKILLS <i>REFLECTION:</i> EVALUATION, TESTING AND JOURNALING.
CS	<i>BEING AN ACTIVE CONTRIBUTOR:</i> INCLUDING SHOWING WILLINGNESS AND THE SKILLS TO RESPOND TO THE NEEDS OF OTHERS, COMING UP WITH SOLUTIONS TO ACTIVELY RESOLVE ISSUES WITHIN COMMUNITIES.
<p align="center">BRANCHES OF TECHNOLOGY</p> <p>INFORMATION:</p> <ul style="list-style-type: none"> - COMMUNICATION OF INFORMATION USING APPROPRIATE I.T. TO PRODUCE A DESIGN FOLIO. - GRAPHIC COMMUNICATION THROUGH DESIGN - DTP. <p>MATERIALS:</p> <ul style="list-style-type: none"> - PROPERTIES AND USE OF THERMOPLASTICS (HIPS, EXPANDED POLYSTYRENE), MDF AND CONDUCTIVE METALS (CU, AL). - WORKSHOP PRACTICES <p>SYSTEMS:</p> <ul style="list-style-type: none"> - BASIC ELECTRONIC COMPONENTS & CIRCUITS. - INDUSTRIAL MANUFACTURING <p>BATCH PRODUCTION</p>	
TECHNOLOGY OBJECTIVES	HOW THEY WILL BE ASSESSED
1. USE OF THE DESIGN CYCLE. 2. UNDERTAKE MEANINGFUL & RELEVANT RESEARCH. 3. MANAGE TIME & RESOURCES EFFECTIVELY 4. CRITICALLY EVALUATE OWN WORK. 5. REFLECT UPON OWN LEARNING	1. CREATE A DESIGN FOLIO FOLLOWING THE DESIGN CYCLE. 2. CARRY OUT MARKET RESEARCH, PRODUCT ANALYSIS & DESIGN ACCORDINGLY 3. CREATE SOLUTION TO APPROPRIATE STANDARD. 4. TEST & EVALUATE SOLUTION. 5. EVALUATE OWN PERFORMANCE IN TERMS OF ATL & LEARNER PROFILE.

EXPLAIN IN YOUR OWN WORDS THE DESIGN TASK THAT YOU HAVE BEEN ASKED TO SOLVE. WHAT IS THE PROBLEM WE ARE TRYING TO SOLVE?

WRITE 2 – 3 GUIDING QUESTIONS THAT MIGHT HELP YOU WITH YOUR RESEARCH. WHAT DO YOU NEED TO FIND OUT?

WHAT ARE THE **AREAS OF INTERACTION** THAT HAVE BEEN HIGHLIGHTED BY YOUR TEACHER FOR THIS DESIGN TASK? HOW MIGHT THEY BEEN INTERPRETED TO HELP YOU UNDERSTAND THE PROBLEM?



DESCRIBE HOW YOU WILL USE THE **DESIGN CYCLE** IN THIS PROJECT.

INVESTIGATE:

PLAN:

CREATE:

EVALUATE:

Investigate

Product Analysis

LOOKING AT SIMILAR PRODUCTS IS A USEFUL FORM OF RESEARCH. YOU CAN LEARN QUICKLY ABOUT THE DIFFERENT METHODS AND TECHNIQUES USED TO SOLVE A PROBLEM SIMILAR TO YOUR OWN. THIS LEAVES YOU IN A GOOD STARTING POINT TO THINK ABOUT YOUR OWN SOLUTION.

FIND PICTURES OF EDUCATIONAL GAMES, 'STEADY HAND' GAMES AND TOYS AND ANNOTATE THOROUGHLY.

USE THE INTERNET, MAGAZINES, BOOKS OR PHOTOGRAPH REAL ITEMS.

ANNOTATION GUIDE FOR PRODUCT ANALYSIS

IDENTIFY ALL THE KEY ELEMENTS OF THE DESIGN?

WHAT FEATURES DO YOU LIKE/DISLIKE ABOUT THE DESIGN?

HOW HAS THE GAME/TOY BEEN MADE?

INDICATE WHAT IDEAS YOU COULD USE.

CONCLUSION:

WHAT DID YOU LEARN FROM YOUR RESEARCH?

HOW WILL THIS AFFECT YOUR **DESIGN SPECIFICATION**?

IN ORDER TO DESIGN YOUR GAME, YOU NEED TO DECIDE ON YOUR USER GROUP AND FIND OUT WHAT THEIR NEEDS ARE.

WHO IS YOUR USER GROUP? _____

CONDUCT A MULTIPLE CHOICE SURVEY TO FIND INFORMATION ABOUT THE LIKES AND DISLIKES OF YOUR CHOSEN DEMOGRAPHIC.

QUESTION	OPTIONS	RESULTS

QUESTION	OPTIONS	RESULTS

Conclusions

Investigate

Electrical Components

COMPONENT	PICTURE	CIRCUIT SYMBOL	USES
BATTERY			
LIGHT EMMITING DIODE			
BUZZER			
TOGGLE SWITCH			

A SPECIFICATION IS A LIST OF KEY POINTS AND/OR CONSTRAINTS THAT DESIGNS MUST TAKE ACCOUNT OF. THE SPECIFICATION IS WRITTEN AFTER THE DESIGN BRIEF HAS BEEN ANALYSED AND RESEARCH HAS BEEN CARRIED OUT. WHAT DESIGN CONSIDERATIONS MUST YOU INCLUDE IN THIS PARTICULAR PROJECT?

USE (WHAT IS IT FOR):

DEMOGRAPHIC (WHO IS IT FOR):

SIZE RESTRICTIONS:

REQUIRED DESIGN ELEMENTS:

TIME TO COMPLETE PROJECT:

AESTHETICS (THE LOOKS):

ERGONOMICS (DESIGN FOR USE):

SPECIAL DESIGN REQUIREMENTS:

SAFETY:

OTHER:

DRAW A CIRCUIT DESIGN USING PICTOGRAMS AND THEN
ONE USING CIRCUIT SYMBOLS

CREATE 4 SKETCHES OF GAMES INDICATING POSSIBLE LAYOUTS, HEADING TYPES, COLOURS ETC.
ANNOTATE EACH DESIGN THOROUGHLY AND USE THE DESIGN SPECIFICATION AS A

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Design

Final Design

JUSTIFY YOUR CHOICE OF FINAL DESIGN AND EXPLAIN HOW YOU HAVE MET THE DESIGN SPECIFICATION.

EXPLAIN MANUFACTURING TECHNIQUES YOU WILL USE AND WHY.

JUSTIFY THE CHOICE OF THEME.

HOW WILL IT BE EDUCATIONAL?

Plan

Gantt Chart

ONE OF THE KEY SKILLS IN TECHNOLOGY IS THE ABILITY TO PLAN AND TO USE TIME AND RESOURCES EFFECTIVELY.

YOU NEED TO CREATE **GANTT CHARTS** TO HELP WITH YOUR TIME MANAGEMENT. YOU SHOULD MAKE NOTE OF THE DUE DATES FOR EACH SECTION AND PLAN ACCORDINGLY.

YOUR GANTT CHART (S) COULD BE COMPLETED IN **NUMBERS** THEN INSERTED HERE.

[HTTP://WWW.GANTTCHART.COM/](http://www.ganttchart.com/)

INVESTIGATE DUE:

DESIGN DUE:

PLAN DUE:

CREATE DUE:

EVALUATE DUE:

Materials List

YOU WILL NEED TO CREATE A **COMPREHENSIVE** LIST OF ALL THE **MATERIALS** AND **COMPONENTS** THAT YOU WILL NEED IF YOU ARE TO CREATE AN ACTUAL PRODUCT. YOU NEED TO INDICATE:

- MATERIALS
- SIZES (LENGTH X WIDTH X HEIGHT)
- COMPONENTS (SCREWS, NAILS ETC)
- CONSUMABLES (GLUES, PAINTS ETC)

Plan

Production Plan

A PRODUCTION PLAN IS A STEP BY STEP GUIDE OF HOW YOU ARE GOING TO MAKE YOUR PRODUCT/SOLUTION. IN THE INVESTIGATE PHASE OF THE DESIGN CYCLE, YOU SHOULD HAVE RESEARCHED INTO THE MATERIALS AND CONSTRUCTION PROCESSES THAT COULD BE USED.

STEP	MATERIALS/TOOLS NEEDED	PROCESS (WHAT I WILL DO)	TIME

Plan

Production Plan

STEP	MATERIALS/TOOLS NEEDED	PROCESS (WHAT I WILL DO)	TIME

DURING THE CREATE PHASE OF THE DESIGN CYCLE, YOU MUST KEEP A PROCESS JOURNAL. YOU SHOULD RECORD WHAT YOU HAVE DONE EACH LESSON AND WHAT YOU WILL DO THE NEXT LESSON.

TAKE PHOTOGRAPHS OF YOUR PROJECT AS IT IS BEING CREATED TO SHOW EACH STEP OF PRODUCTION. INDICATE PROBLEMS YOU HAVE ENCOUNTERED AND HOW YOU OVERCAME THEM.

DATE	WHAT WAS ACCOMPLISHED THIS LESSON, TOOLS USED, PROBLEMS ENCOUNTERED AND HOW THEY WERE OVERCOME.	WHAT I HOPE TO ACHIEVE NEXT LESSON, WHAT TOOLS I WILL NEED, WHAT MATERIALS I WILL NEED, ANY CHANGES TO MY DESIGN.

DATE	WHAT WAS ACCOMPLISHED THIS LESSON, TOOLS USED, PROBLEMS ENCOUNTERED AND HOW THEY WERE OVERCOME.	WHAT I HOPE TO ACHIEVE NEXT LESSON, WHAT TOOLS I WILL NEED, WHAT MATERIALS I WILL NEED, ANY CHANGES TO MY DESIGN.

TEST YOUR GAME:

DESCRIBE HOW YOU CAN GAUGE THE SUCCESS OF YOUR GAME. HOW DOES IT MEET THE DESIGN SPECIFICATION?

HOW CAN YOU TEST IT WITH YOUR INTENDED USERS?

CARRYOUT THE TEST AND DOCUMENT YOUR RESULTS.

EVALUATION IS PERHAPS THE MOST IMPORTANT PART OF THE DESIGN CYCLE. YOU NEED TO EVALUATE THE **FINAL PRODUCT**, EVALUATE EACH STAGE OF THE **DESIGN CYCLE** AND EVALUATE AGAINST THE **AREAS OF INTERACTION**.

EVALUATION OF: FINAL PRODUCT	HAVE YOU SOLVED THE PROBLEM? HOW CAN YOU TEST THE PRODUCT? HOW COULD YOU IMPROVE YOUR DESIGN?
DESIGN IMPROVEMENTS (SKETCH)	DESIGN IMPROVEMENTS (SKETCH)

EVALUATION OF DESIGN CYCLE:

INVESTIGATION

HAVE YOU EXPLAINED THE PROBLEM CLEARLY IN THE
DESIGN BRIEF AND SPECIFICATION?
HAVE YOU INVESTIGATED THE PROBLEM THOROUGHLY
HAVE YOU ACKNOWLEDGED YOUR SOURCES?
HOW CAN YOU EFFECTIVELY TEST YOUR SOLUTION?

EVALUATION OF DESIGN CYCLE:

DESIGN & PLAN

DID YOU PRODUCE SEVERAL FEASIBLE DESIGNS?
CAN YOU JUSTIFY YOUR CHOSEN FINAL DESIGN?
DID YOU PRODUCE A DETAILED AND LOGICAL PLAN?

EVALUATION OF **DESIGN**
CYCLE:
CREATE

DID YOU USE THE TOOLS AND EQUIPMENT EFFECTIVELY?
WHAT PROBLEMS TO YOU HAVE? HOW DID YOU SOLVE THEM?
DID YOU CHANGE YOUR DESIGN? CAN YOU JUSTIFY YOUR CHANGES?
DID YOU CREATE A SOLUTION OF APPROPRIATE QUALITY?

EVALUATION OF **DESIGN**
CYCLE:
ATTITUDES IN TECHNOLOGY

DID YOU WORK TO THE BEST OF YOUR ABILITY?
WERE YOU SELF MOTIVATED?
COULD YOU SOLVE PROBLEMS AND WORK INDEPENDENTLY?
LIST AND EXPLAIN ANY LEARNER PROFILE ATTRIBUTES.

EVALUATION OF AREAS OF
INTERACTION:
COMMUNITY & SERVICE

COMMUNITY SERVICE IS CONCERNED WITH HOW WE CAN SERVE AND CONTRIBUTE TO OUR COMMUNITY. HOW HAVE YOU DONE THIS? WHAT WERE THE NEEDS OF THE COMMUNITY THAT YOU ADDRESSED? WHAT ARE THE POSSIBLE EFFECTS OF YOUR DESIGN?

EVALUATION OF AREAS OF
INTERACTION:
APPROACHES TO LEARNING

WHAT ALT SKILLS DID YOU EMPLOY DURING THIS PROJECT?
WERE THEY EFFECTIVE/RELEVANT? HOW COULD YOU IMPROVE?
E.G.: BRAINSTORMING, GANTT CHARTS, BIBLIOGRAPHIES, SURVEYS, INTERVIEWS, GROUP WORK, TESTING, EVALUATION.

Completed Game