

STUDENT EDUCATION NUMBER									



GOVERNMENT OF SAMOA
MINISTRY OF EDUCATION, SPORTS AND CULTURE

Samoa Secondary Leaving Certificate

DESIGN TECHNOLOGY

2019

QUESTION and ANSWER BOOKLET

Time allowed: 3 Hours & 10 minutes

INSTRUCTIONS

1. You have 10 minutes to read before you start the exam.
2. Write your Student Education Number (SEN) in the space provided on the top left hand corner of this page.
3. Answer ALL QUESTIONS. Write your answers in the spaces provided in this booklet.
4. If you need more space, ask the Supervisor for extra paper. Write your SEN on all extra sheets used and clearly number the questions. Attach the extra sheets at the appropriate place in the booklet.

STRANDS		Page	Time (min)	Weighting
STRAND 1:	DRAWING AND DESIGNING	2	45	25
STRAND 2:	HAND AND POWER TOOLS	6	27	15
STRAND 3:	MATERIALS	8	36	20
STRAND 4:	PROCESSES	13	54	30
STRAND 5:	TECHNOLOGY	22	18	10
TOTAL			180	100

Check that this booklet contains pages 2-24 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

1. State the problem for your independent project faced with at home, school or in your community.

SL 1

2. Identify in the space provided the proposed solution that will solve the problem stated in Number 1.

SL 1

Define the following terms.

3. Evaluation

SL 1

4. Design Brief

SL 1

5. Name the TWO types of Design Brief.

A. _____

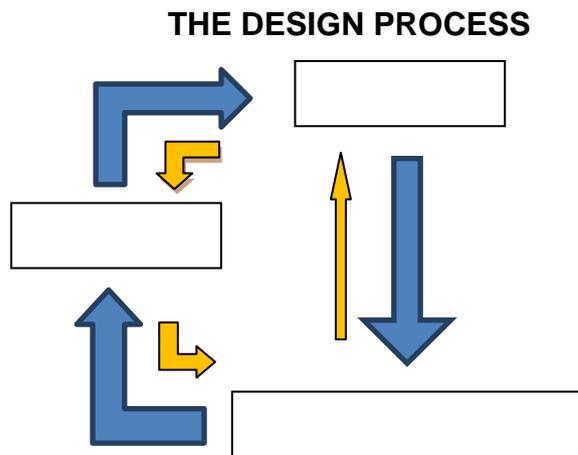
B. _____

SL 1

6. Describe the stages of the design process.

SL 2

7. Label TWO stages of the design process.



SL 2

8. Explain the purpose of the anti-clockwise arrows shown in the diagram above.

SL 3

9. Discuss the importance of the specification in building a project.

SL 4

10. Compile a set of sketches for your independent project at school and provide measurements for it.

SL 3

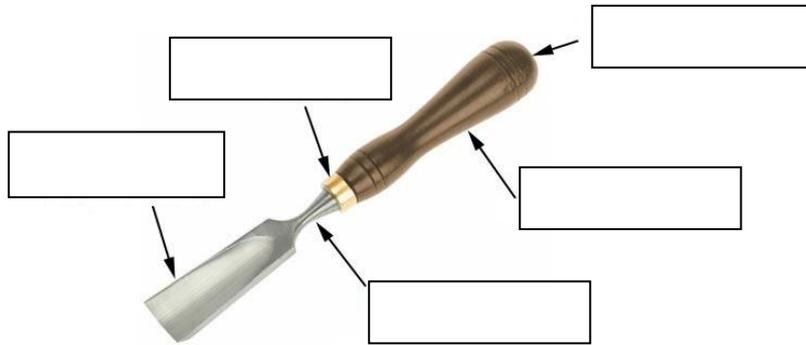
11. Differentiate Cabinet and Cavalier Oblique Drawing in your own words.

SL 3

12. Compare the differences between an Isometric and Oblique Drawing.

SL 3

13. Label parts of a Chisel given below.



SL 1

14. Name the right tool for retrieving screws from timber.

SL 1

15. Define Power Tools.

SL 1

16. Describe the main usage of a utility knife.

SL 2

17. Differentiate hand tools and power tools.

SL 3

18. Explain why tools must be well maintained and stored after use.

SL 3

19. Discuss the importance of having a Tool check-up list.

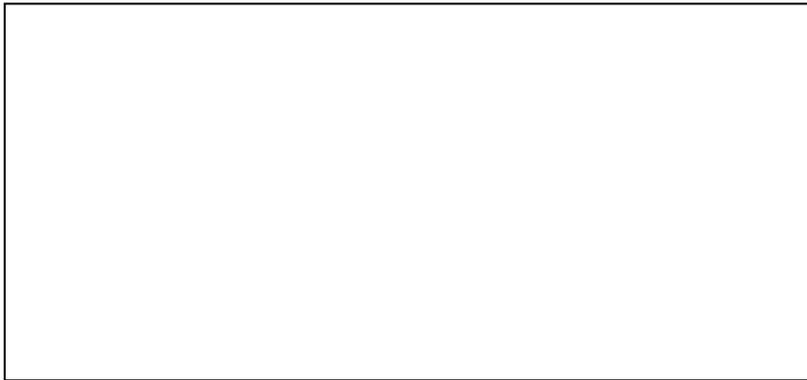
SL 4

INSTRUCTION: ANSWER **Option 1** – Wood Materials **OR** **Option 2** – Metal Materials.

OPTION 1: Wood Materials

Sketch THREE common timber defect in timber.

20.



SL 1

21.



SL 1

22.



SL 1

23. Explain the difference between Twist and Spring.

SL 3

24. Name TWO methods of drying timber.

SL 1

25. Describe the advantage of treating timber.

SL 2

26. Explain the process of treating timber.

SL 3

27. Evaluate the quality of local and imported timbers in Samoa.

SL 4

28. Discuss the process of converting tree into timbers.

SL 4

IF YOU HAVE ANSWERED OPTION 1, DO NOT DO OPTION 2

OPTION 2: Metal Materials

'Metal is an important resource material used in metal and construction work.'

29. List FOUR different metals discussed in your class this year.

SL 1

30. Identify the size of metal used for car chassis.

SL 1

31. Identify TWO non-ferrous metals.

SL 1

32. Compare the properties of metal and properties of wood materials.

SL 3

33. Name the tool used to join two parts of metal materials.

SL 1

34. Identify THREE exact metal materials sizes used to build a coffee table.

SL 2

35. Describe the BEST method to apply in preserving metal.

SL 3

36. Evaluate the quality of one of the metal you stated in Number 29 in terms of strength, durability, hardness and ability to withstand stress.

SL 4

37. Evaluate the quality of metal and wood materials.

SL 4

STRAND 4: PROCESSING Weighting 30

INSTRUCTION: ANSWER **Option 1** – Wood Processes **OR** **Option 2** – Automotive

OPTION 1: Wood Processes

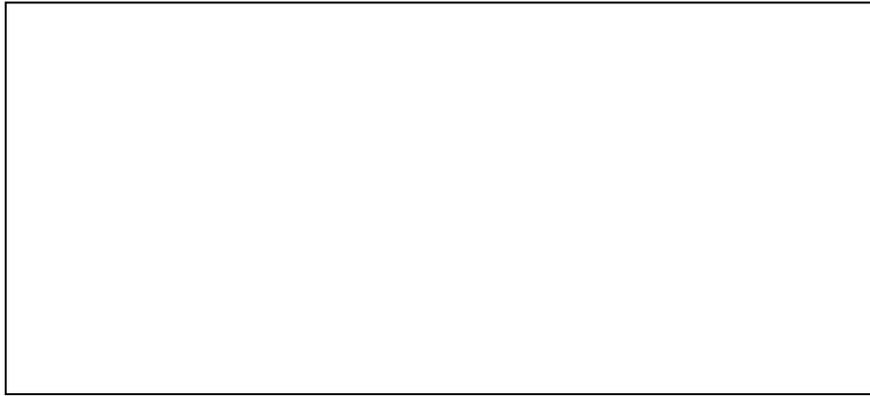
Draw pictures for the following type of timber joints.

38. Mortise and Tenon Joint



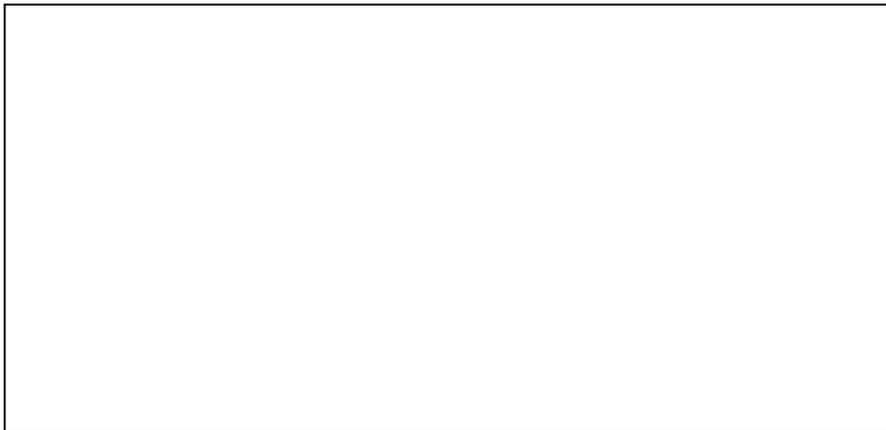
SL 1

39. Mitre Halving Joint



SL 1

40. Tongue and Groove Joint



SL 1

41. Tee Halving Joint

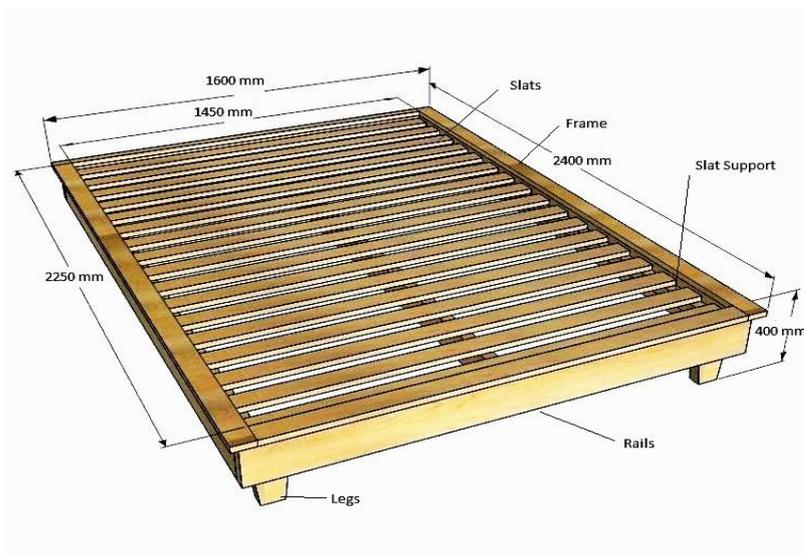


SL 1

42. Name the appropriate finishing product used to fill holes in wood.

SL 1

Use the diagram below to answer the following questions.



Timber Sizes: Slat: 25 x 100
 Slat Support: 50 x 150
 Rails: 50 x 200
 Frame: 25 x 75
 Legs: 50 x 200
 Joint used: Butt Joint

43. Create a cutting list based on the bed above the information provided.

SL 3

	No. of pieces	Length	Width	Thickness	Total
Slats					
Slats Support					
Rails					
Frame					
Legs					

47. Convert the following sizes of timber into Millimeters.

A. $2 \times 4 \times 20'$ = _____

B. $2 \times 8 \times 16'$ = _____

C. $2 \times 12 \times 14'$ = _____

SL 2

48. Which tool is best used to remove the roughness on timber?

SL 1

49. Explain the process of making a Mitre Joint.

SL 3

50. Discuss the importance of cleaning up after building your project at school.

SL 4

51. Explain why drawings are important in the project design, planning and building process.

SL 3

52. Name the material that is commonly used in schools to change the colour of the project.

SL 1

IF YOU HAVE ANSWERED OPTION 1, DO NOT DO OPTION 2

OPTION 2: Automotive Processes

Define the following parts of an engine.

53. Valve

SL 1

54. Cylinder

SL 1

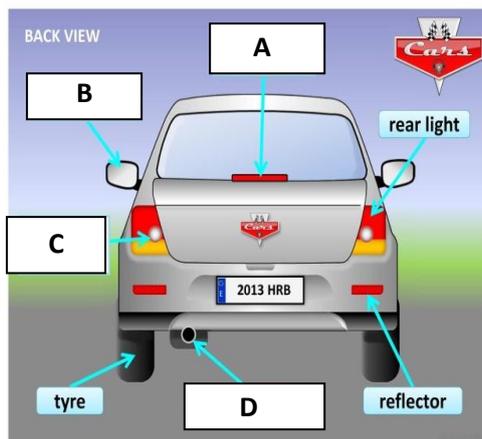
55. Piston

SL 1

56. Spark plug

SL 1

Label the following parts of a car.



57. A: _____

SL 1

58. B: _____

SL 1

59. C: _____

SL 1

60. D: _____

SL 1

61. Describe the meaning of each letter shown on the automatic gear provided.



SL 1

62. Draw a picture of a V8 Engine and a V6 Engine in the spaces provided.

V8 Engine

V6 Engine

SL 2

63. Explain your responsibility as an owner of the car to reduce the excessive black smoke from engine exhaust.

SL 3

64. Explain the main components of a two stroke engine.

SL 3

65. Discuss the disadvantage of having two exhausts on a car.

SL 4

66. Discuss the purpose of a seat belt in a car.

SL 4

STRAND 5:

TECHNOLOGY

Weighting 10

Read carefully and then answer in the spaces below.

67. What is the disadvantage of using timber in Buildings?

SL 1

68. List TWO advantages of using timber in Buildings.

SL 2

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DESIGN TECHNOLOGY

2019

(For Scorers only)

CURRICULUM STRANDS	Scores	Weighting
STRAND 1: DRAWING AND DESIGNING		25
STRAND 2: HAND AND POWER TOOLS		15
STRAND 3: MATERIALS		20
STRAND 4: PROCESSING		30
STRAND 5: TECHNOLOGY		10
TOTAL		100