



Samoa Secondary Leaving Certificate

DESIGN TECHNOLOGY

2020

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 right 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:	DESIGNING	2	45	25
STRAND 2:	HAND AND POWER TOOLS	7	27	15
STRAND 3:	MATERIALS	9	36	20
STRAND 4:	PROCESSES	15	54	30
STRAND 5:	TECHNOLOGY	24	18	10
TOTAL			180	100

Check that this booklet contains pages 2-26 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. Define the term Producing or Making in your own words.

SL 1

2. Name the stage of the Project where the drawing is made.

SL 1

Define the following terms.

3. Open Design Brief

SL 1

4. Close Design Brief

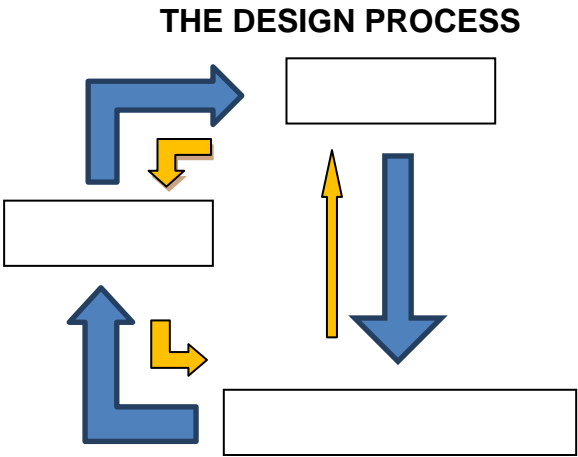
SL 1

5. Investigation.

SL 1

Study the Design Process diagram below and answer Questions 6 to 8.

6. Label the stages of the design process in the diagram below.



SL 2

7. Describe the importance of each stage of the Design Process in your own words.

SL 2

8. Explain the purpose of an Anti-Clockwise arrow shown in the Design Process chart.

SL 3

Differentiate the following terms.

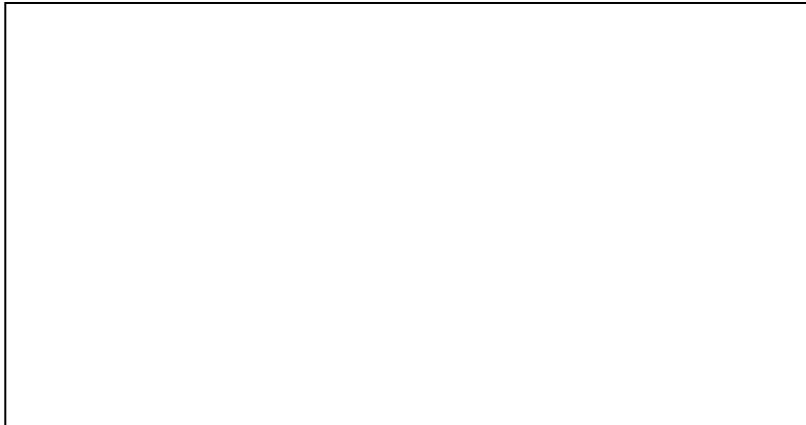
9. Cabinet and Cavalier

SL 3

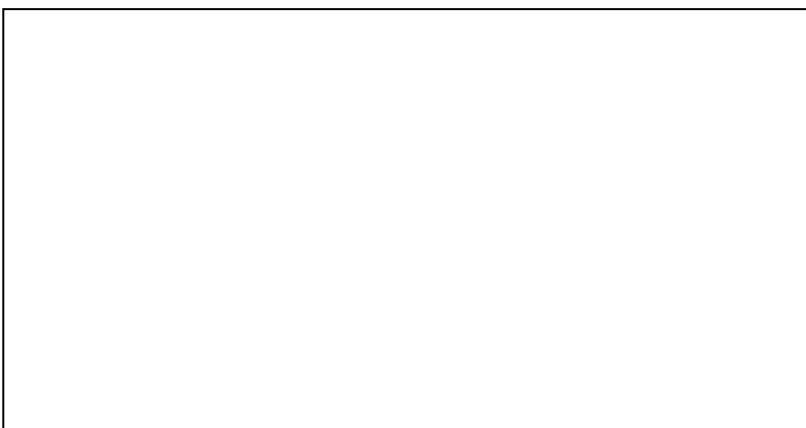
10. Oblique and Isometric

SL 3

11. Compile a set of sketches for a specific project built at school and provide measurements for it.



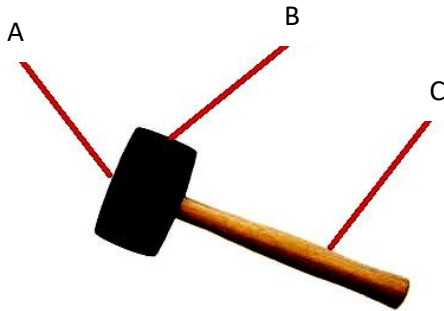
SL 3



12. Discuss the term Specification in relation to project building.

SL 4

13. Label parts of a Rubber Mallet given below.



A. _____

B. _____

C. _____

SL 1

14. What is the important thing to do to protect tools from rust when storing?

SL 1

15. Define the term Pincer in your own words.

SL 1

16. Describe the correct usage of a tenon saw.

SL 2

17. Differentiate portable tools and cordless tools.

SL 3

18. Discuss the importance of understanding tools and their uses.

SL 4

19. Explain why every building company should have a Tools check-up list.

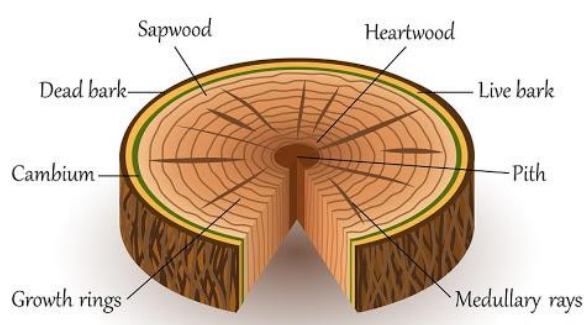
SL 3

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

Do **NOT** answer both.

OPTION 1: Wood Materials. (Questions 20 to 28 only).

Tree Cross Section



Define the following terms.

20. Dead Bark.

SL 1

21. Medullary Rays.

SL 1

22. Cambium.

SL 1

23. Growth Rings.

SL 1

24. Describe the Advantage of treating timber with Chemicals.

SL 2

25. Explain why local builders commonly use local timber instead of overseas timber for building a faleo'o.

SL 3

26. Explain the difference between Bow and Twist.

SL 3

27. Evaluate the quality of local and overseas timber.

SL 4

28. Discuss the process of Quarter Sawing.

SL 4

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

OPTION 2: Metal Materials. (Questions 29 to 37 only).

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

29. Convert the following sizes of metals into millimetres.

2" x 6" x 18' = _____

1" x 3" x 1' = _____

SL 1

30. Identify a material used to joint two pieces of metal.

SL 1

31. What is Metal?

SL 1

32. Name THREE types of metal discussed in your class this year.

SL 3

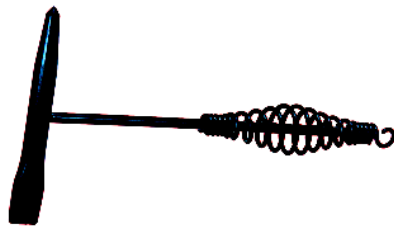
33. Write down THREE properties which you think would describe all metals.

SL 2

34. Compare the properties of metal and wood in your own words.

SL 3

35. Describe the main usage of the following tool.



SL 3

36. Discuss the importance of heat treatment of metal.

SL 4

37. Evaluate the quality of metal in relation to building.

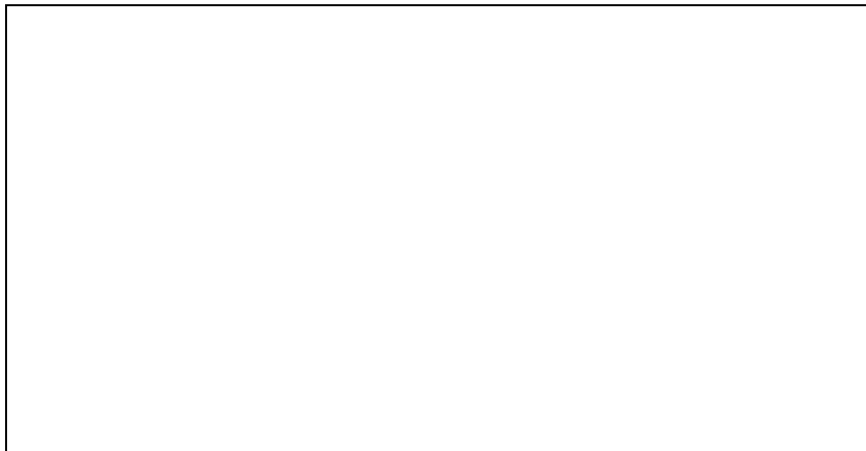
SL 4

INSTRUCTION: ANSWER **Option 1** – Wood Processes **OR** **Option 2** – Automotive
Do NOT answer both.

OPTION 1: Wood Processes. (Questions 38 to 52 only).

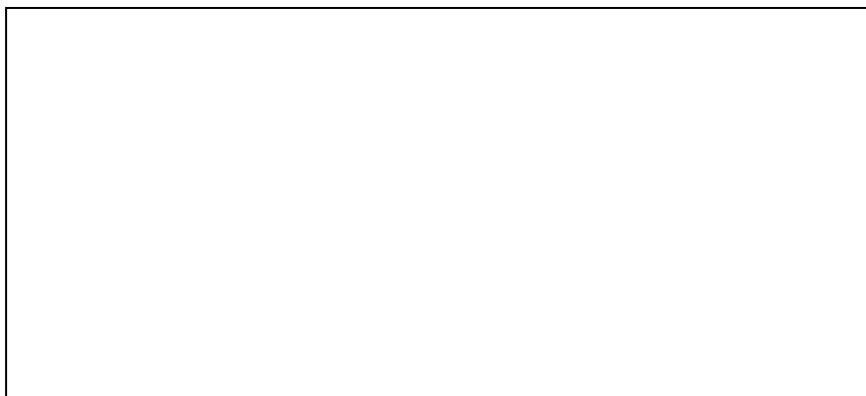
Draw pictures for the following type of timber joints.

38. Butt Joint



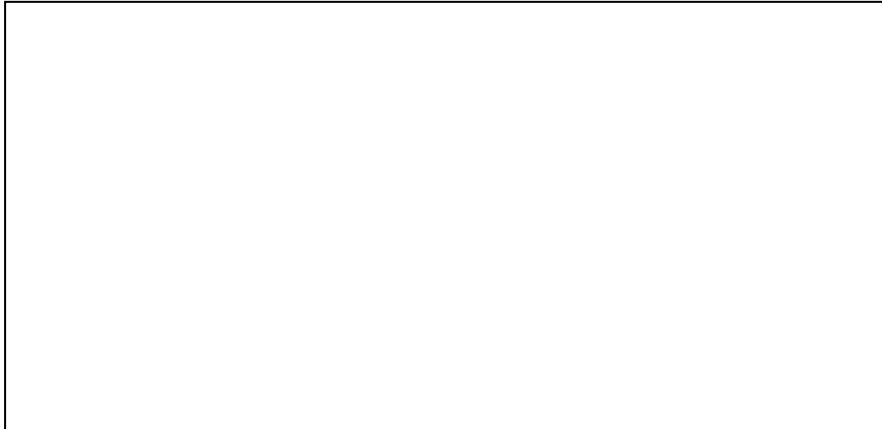
SL 1

39. Box Pin Joint



SL 1

40. Tongue and Groove Joint



SL 1

41. Cross Halving Joint



SL 1

42. Name the appropriate finishing materials used to reduce the roughness in timber.

SL 1

43. Name the appropriate tool used for squaring corner of any project built.

SL 1

44. Name the TWO types of drawing included in an Orthographic Drawing.

SL 1

45. Name the suitable paint commonly used in school to change colour on a project built.

SL 1

Use the diagram below to answer Questions 46 to 48.



Chair Measurement

Length: 500 mm
Width: 500 mm
Back Height: 1000 mm
Front Height: 450 mm

Timber Size

Back Legs: 2 x 3 or 50 x 75
Front Legs: 2 x 3 or 50 x 75
Top and cross rail: 1 x 4 or 25 x 100
Seat: 1 x 4 or 25 x 100
Rails: 1 x 4 or 25 x 100

Joint Used: Butt Joint

46. Create a cutting list based on the chair above based on the information provided.

	No. of pieces	Length	Width	Thickness	Total
Seat					
Top and Cross Rail					
Back Post					
Front Post					
Rails					

SL 4

47. Calculate the total lengths of Material needed for the project when placing an order at Bluebird Lumber based on the information provided in Question 46.

SL 4

48. The cost for a 25 x 100 at Bluebird is \$5.41 per meter, \$4.60 for a 50 x 75 per meter. Do a costing for the materials needed for the chair (page 17) not including screws, varnish, glue and nails.

SL 3

49. Convert the following sizes of timber into Millimeters.

- A. 2 x 4 x 14' = _____
- B. 2 x 6 x 10' = _____
- C. 2 x 10 x 8' = _____

SL 2

50. Explain what a good trade practice is.

SL 3

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

SL 4

52. Describe TWO ways or methods of sharpen a chisel on an oilstone.

SL 2

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

OPTION 2: Automotive Processes. (Questions 53 to 67 only).

Define the following parts of a Car.

53. Brake pads

SL 1

54. Timing Belt

SL 1

55. Suspension

SL 1

56. Muffler

SL 1

Label the following parts of a car.



57. A: _____

SL 1

58. B: _____

SL 1

59. C: _____

SL 1

60. D: _____

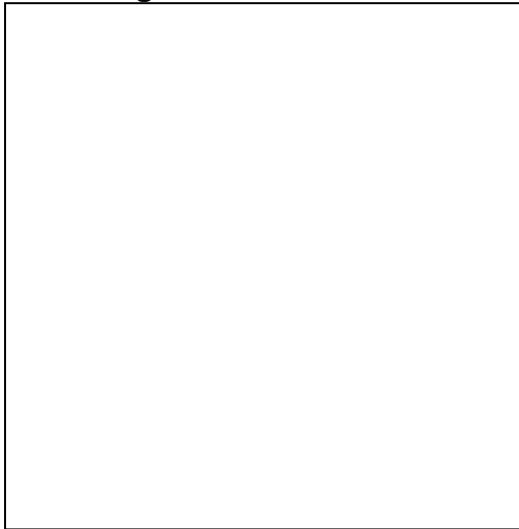
SL 1

61. Describe how you would service a small engine.

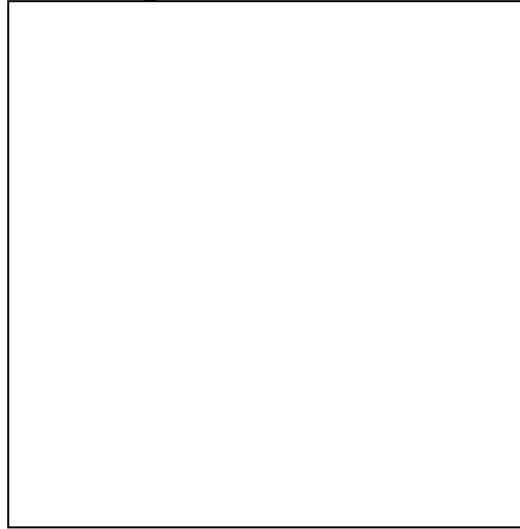
SL 2

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

V8 Engine



V6 Engine



SL 2

SL 2

63. Explain the main purpose or role of a Piston in an Engine.

SL 3

SL 3

64. Explain the main reason why we service our cars every three months.

SL 3

SL 3

- 65.** Discuss the difference between a four wheel drive and a two wheel drive car.

SL 4

- 66.** Discuss the environmental impact of the motor vehicle industry in Samoa.

SL 4

- 67.** Discuss the importance of cleaning up after building your project at school.

SL 4

Read carefully and answer Questions 68 to 70.

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

SL 1

69. List TWO disadvantages of using timber in Buildings.

SL 2

70. Explain the process of seasoning timber in a Progressive kiln.

SL 3

71. Discuss different ways or methods of converting logs into timber in a Saw Mill.

SL 4

STUDENT EDUCATION NUMBER									

DESIGN TECHNOLOGY

2020

(For Scorers only)

CURRICULUM STRANDS	Weighting	Scores	Check Scorer	Double Entry (AED)
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			