

Engineering Bridges

Module Activity Sheet

Name _____ Block _____

Enter Date example: Oct. 25

Session # 1

Module Guide Score = _____ / 10 Date Completed _____
Designing Your Bridge Activity Date Completed _____
Assessment Answers Completed in Packet (Pg. 2)... Date Completed _____
Enrichment Menu-Bloop/Critter Cross (10 minutes) Date Completed _____

Session # 2

RCA 's Score = _____ / 30 Date Completed _____
Start Construction of 1st Side of Bridge Date Completed _____
Vocabulary Page Completed in Packet (Pg. 5)..... Date Completed _____

Session # 3

RCA 's Score = _____ / 30 Date Completed _____
Complete Construction of 1st Side of Bridge..... Date Completed _____
Assessment Answers Completed in Packet (Pg. 3) .. Date Completed _____
Technical Writing Page Completed in Packet(Pg. 6) Date Completed _____

Session # 4

RCA 's Score = _____ / 30 Date Completed _____
Start Construction of 2nd Side of Bridge Date Completed _____
Career Sheet Page Completed in Packet (Pg. 7) Date Completed _____

Session # 5

RCA 's Score = _____ / 30 Date Completed _____
Complete Construction of 2nd Side of Bridge Date Completed _____
Sketched Cantilever and Arch Bridges Date Completed _____
Word Search Page Completed in Packet (Pg. 8) Date Completed _____

Session # 6

Test Review "Game"..... Date Completed _____
Bridge Roadbed Construction Activity Date Completed _____
Assembling the Bridge Activity Date Completed _____
Test Review Page Completed in Packet (Pg. 9) Date Completed _____

Session # 7

Post Test Score = _____ / 100 % ... Date Completed _____
Final Assembly Activity Date Completed _____
Assessment Answers Completed in Packet (Pg. 4).. Date Completed _____
I Have Inspected My Packet – It is Complete..... Date Completed _____

Engineering Bridges

Assessment Worksheet for Session 3

Instructions: On the session day indicated above, please write the answers to the assessment questions.

If you need more room to write a response – use the back of this page.

Session 3 – Bridge Construction

1. **List and Explain** the two types of loads.

1.

2.

2. **List and Explain** the 3 forces acting upon a structure?

1.

2.

3.

3. **Explain** how adding diagonal bracing to your bridge make it stronger?

4. **Recall** at least one of the two factors used to determine the strength of the bridge.

1.

2. (Bonus Answer)

Engineering Bridges Vocabulary Worksheet

Please write a definition for each vocabulary term.

1. Aggregate-

2. Architect-

3. Building codes-

4. Girder-

5. Compression force-

6. Span-

7. Substructure-

8. Superstructure-

9. Support column-

10. Rise-

11. Truss-

12. Survey-

13. Structural drawing-

14. Maintenance-

15. Tunnel-

Engineering Bridges Career Investigation

From the ***Occupational Outlook Handbook*** –Look up the career that is assigned to your module topic. Using the information in the book answer the following question about the assigned career. The career for your module is:

Carpenters and is on Page 506

1. **Nature of the work** (What does the occupation do?):
 - A.
 - B.
2. **Working conditions** (Ex. inside / outside, clean / dirty, safe / hazardous etc.):
3. **Training or education needed, other qualifications required, and possible advancements / promotions:**
4. **Job Outlook** (In the future, what is the demand / forecast for this job):
5. **Earnings** (What is the average salary / income for this career):
6. **Related occupations** (What other occupations are part of the selected topic):
 - A.
 - B.
7. **Sources of additional information** (Sites, agencies or references to provide more information on your selected occupation):
 - A.
 - B.

Engineering Bridges WordSearch

H E V I S N E T P Z P D D R E T M N F V
 T N N M U L O C Y M V I L B E L R E R Q
 F E P C G G N I K C A R T V Y E H O A L
 E A T R O P P U S O L E E E T E S G H S
 H D E X R F E S L N E T B T I G Q O F C
 S V V A K Y U T N D E W A L T E S N S R
 R U K E M R R L I E A P L E D O M S E R
 P Q B H T F S E F H G B S G R I P K M Z
 Q D L S B E S R T C G O A U I G M V R E
 G E R U T C U R T S R E P U S R S P G E
 M D O D O R G G L U E E T U L A D P H C
 L T Y P R J U M E C G T V A M V G E N J
 S E T E O H F C E J A T C E T I H C R A
 I A B T N C T S T R T S D T F T K O R X
 B A E T T H F R P U E C I J O Y M I R E
 K M O M I K S I I A R I N R R S I V A P
 P S P E P G C S O G N E Q Y C E I L W N
 D S J I R A A E H E T U S U E D N I W E
 F W H V E R E I D U E A M R S O G C E N
 N E G T G O E T I E Q O I W O C P O E N

Find the following hidden words:

**aggregate, architect, codes, force, girder, span, substructure,
 superstructure, column, tensive, truss, support, balsa, model, pratt,
 beam, wind, gravity, racking, torque, suspension, pattern, glue, tester**

ENGINEERING BRIDGES

Test Review

Circle the correct answers while playing the Review Game at the beginning of Session # 6.

- For engineering purposes, the triangle is the best choice of all geometric shapes for providing which element?
 - design
 - looks
 - strength
 - balance
- What term is defined as a structural element made up of a series of triangles?
 - truss
 - wedge
 - flying buttress
 - post and lintel
- What type of stress tries to turn a square into a parallelogram?
 - racking
 - torsion
 - tension
 - compression
- What are the most common forces that will be acting on each piece of wood in your bridge?
 - up, down
 - weight, static
 - static, dynamic
 - compression, tension
- Which of the listed items is an example of a dynamic load?
 - the force that a magnet creates
 - a heavy truck parked on a bridge
 - a heavy truck crossing a bridge
 - a side force
- In Engineering, what does the word span describe?
 - the weight of a bridge
 - the height of a bridge
 - the length of a bridge
 - how high the roadway of a bridge is above water
- A rigid member in compression is called a strut. What is a rigid member in tension called?
 - diagonal
 - pier
 - brace
 - tie
- Which of the listed functions is common to all structures?
 - to house people
 - to support a load
 - to resist weather
 - to with stand heat
- What term is defined as the type of brace that makes squares and rectangles stronger?
 - diagonal
 - horizontal
 - vertical
 - insider
- To calculate the efficiency of a balsa bridge, the weight required to break the bridge is divided by what?
 - the volume of the bridge
 - the length of the bridge
 - the weight of the bridge
 - the mass of the bridge