

Materials Engineering, Lessons 1 & 2

9-24-2018

1. Explain what a Materials Engineer does. What are typical education requirements

For each of the following materials, provide the information requested. List sources in brackets—Example: [<https://engineering.purdue.edu/MSE/aboutus/whatsmaterials>]

LESSON 1

2. wood*
3. steel,
4. stainless steel,
5. iron,
6. bronze,
7. brass,
8. copper,
9. tin,
10. carbon fiber
11. Fiberglass

LESSON 2

12. glass,
13. plexiglass,
14. plastic*,
15. cloth*,
16. nickel,
17. titanium,
18. leather,
19. ceramic,
20. gold,
21. stone*,
22. concrete

INFORMATION REQUESTED

- (a) If asterisk (*), then list five types of this material
- (b) When (year) and where invented; or came into common use
- (c) Strengths
- (d) Weaknesses
- (e) Industries that use it
- (f) Common uses (List 5 examples of products using it)
- (g) WHY it is used in these common uses
- (h) How it is commonly fabricated (shaped, molded, etc.)
- (i) Comment on it's cost & availability

Example: 2. Wood

(a) If asterisk (*), then list five types of this material

- *Pine, Oak, Mahogany, Birch, Ash, Maple*

(b) When (year) and where invented; or came into common use

- Antiquity, pre-history

(c) Strengths

- Beauty, easy to work with using common inexpensive tools. Durable in dry indoor applications. Relatively hard/strong, depending on application

(d) Weaknesses

- Rots in humid/outdoor applications. Relatively soft, depending on application

(e) Industries that use it

- Building Construction. Furniture. As trim in vehicles and many other products.

(f) Common uses (List 5 examples of products using it)

- Houses, chairs, tables, as trim or accent feature in vehicles and many other products. Baseball bats, handles for tools

(g) WHY it is used in these common uses

- Cheap, strong, easy to fabricate, historical use, beauty.

(h) How it is commonly fabricated (shaped, molded, etc.)

- Saws, drills, sanders, routers, planers

(i) Comment on it's cost & availability

- Depending on type, very cheap. With proper forestry management, this material is completely renewable. There should never be a shortage.