

NATURAL RESOURCES AND YOUR CHRISTMAS TREE

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With the excitement of Christmas, the last thing on our minds is the natural resources that bring such pleasure to this holiday season. The lights, decorations, glitter on greeting cards, and wrapping paper add to the excitement of the holidays. Perhaps the image of the Christmas tree is the most memorable of all. Have you ever thought about the raw materials that bring together this image? The majority of these raw materials were furnished by the mining and petroleum industries.

Some people drive to the forest to cut Christmas trees. Most Christmas trees are grown on tree farms. Like all crops, the trees are grown with fertilizers. About half of the world's production of sulfur and over 90% of the production of phosphates and potash go into fertilizers, of which the sapling trees receive a share. Surface and ground water resources are also need for the growth of the trees.

Strands of tiny lights have replaced candles on the trees, adding to the list of minerals that bring holiday-cheer. The wires are made of copper; the insulation and wall plug are formed by the combination of petrochemicals with pumice, limestone, marble, vermiculite, silica, feldspar, or trona. The glass bulbs contain feldspar, silica, clay, nepheline syenite, and trona; filaments in the bulbs are made of thin conductive strips of tungsten metal, which comes from the minerals scheelite and wolframite.

The glittering tree ornaments are made of ingredients similar to light bulbs, and also contain borate and metals such as iron, copper, and lead. The star at the top of the tree could be made from either aluminum, silver, or copper. The ornament hangers and tree stand also are typically a metal alloy containing iron or aluminum. Colorful paints and glazes used to decorate the ornaments are based on petrochemicals, mica or clay, and are pigmented with ingredients such as lithium found in spodumene, titanium in rutile, manganese in pyrolusite, and rare

earth elements in bastnesite and monazite. The papers and woods that the paints are applied to commonly contain clay as an additive or filler.

Well over 20 different raw materials are used to create a decorated Christmas tree. And what about the natural resources that go into the gifts, or the electricity to light the tree? WOW! AND, don't forget the steel saw used to cut down your Christmas tree!

Quiz

Listed below are some items often associated with a Christmas tree and some raw materials that are used to make these items. In the blanks write the letters of some of the raw materials used to make each item on the tree. Refer to the Key for some possible answers.

Christmas Tree Items

- | | |
|----------------------------|----------------------------|
| 1. Star _____ | 8. Plastic ornaments _____ |
| 2. Tree _____ | 9. Electricity _____ |
| 3. Ornament hangers _____ | 10. Glass ornaments _____ |
| 4. Electrical wire _____ | 11. Paint _____ |
| 5. Light bulbs _____ | 12. Tree stand _____ |
| 6. Wire insulation _____ | |
| 7. Ceramic ornaments _____ | |

Raw Materials

- | | | |
|--|----------------------|------------------------|
| a. Sulfur | k. Clays | u. Rare-earth elements |
| b. Trona | l. Silver | v. Tungsten |
| c. Lead | m. Manganese | w. Wood |
| d. Mica | n. Pumice | x. Feldspar |
| e. Petrochemicals, oil,
natural gas | o. Nepheline syenite | y. Coal |
| f. Aluminum | p. Limestone | z. Water |
| g. Potash | q. Copper | |
| h. Iron | r. Phosphates | |
| i. Silica | s. Lithium | |
| j. Vermiculite | t. Titanium | |

Key:

1. Star: f, l, q
2. Tree: a, g, r, w, z
3. Ornament hangers: f, h
4. Electrical wire: q
5. Light bulbs: x, i, k, o, b, v
6. Wire insulation: e, n, p, w, j, x, b
7. Ceramic ornaments: x, i, k, o, b, h, q, c
8. Plastic ornaments: e
9. Electricity: e, y, z
10. Glass ornaments: x, i, o, b, h, q, c
11. Paint: e, d, k, s, t, m, u
12. Tree stand: h, f, w

