a.

Heartwood

"I stand tall."

Heartwood forms the central core of the tree.
It is made up of dense dead sapwood (xylem cells)
and provides strength for the tree.

(1)

b.

Sapwood

"We pump, we pump."

Sapwood, made from xylem (ZEYE-luhm) cells
brings water and nutrients
up from the roots to the leaves.
Older sapwood cells
become part of the heartwood.

(3)

c.

Cambium

(KAM-bee-uhm)

"We make new cells."

The cambium layer is made of cambium cells. This very thin layer of growing tissue makes xylem cells (that become new sapwood), and phloem cells (that become inner bark).

(5)

d.

Inner Bark

"We bring sap around."

The inner bark is made from called
phloem (FLOW-uhm) cells.
It carries sap from the leaves to the rest of the tree.
At certain times of the year, the inner bark may also move
stored sugars from the roots up to the rest of the tree.

(6)

e.

Outer Bark

"We protect, we protect."

The outer bark protects the tree from injury caused by insects, animals, plants, diseases, and fire. Different types of trees have different types of bark.

(8)

f.

Roots

"We anchor the tree."

Roots help anchor the tree in the ground.
They also absorb water and nutrients from the soil.

(3)

(g)

Insect

"I hide, I hide!"

The insect tries to find a place to hide
in the bark of the tree.

(1)

(h)

Woodpecker

"I hunt for insects."

The woodpecker drills holes in the outer bark to find insects to eat.

(1)

(i)

Leaf

“We make food.”

Chlorophyll in the leaves allow plants to make food by absorbing sunlight and carbon dioxide (CO_2) in a process called photosynthesis. When sunlight and CO_2 are combined with water (from the roots), the products of photosynthesis are oxygen and sugars.

(4)

Tree Factory Card	**X number to make***
Heartwood	**X 1**
Sapwood	**X 3**
Cambium	**X 5**
Inner Bark	**X 6**
Outer Bark	**X 8**
Roots	**X 3**
Bug	**X 1**
Woodpecker	**X 1**
Leaves	**X 4**
Total	**32**

* Numbers can be used as proportions. If you only have 20 students, then use fewer cambium, inner bark, and outer bark cards.