Compost Pre/Post Test; Beech Grove SARE/Composting project

1. What is an optimum soil pH for growth of horticultural plants?

A. 2.1-2.5
B. 4.5-5.0
C. 6.8 -7.2 **********
D. 9.0-10.0

2. Why do we need to know soil pH?

A. Soil pH is an important chemical property because it affects the availability of nutrients to plants and the activity of soil microorganisms. **********
B. Actually an old 'wives tale', we DON'T NEED to know soil pH
C. pH determines rate of drainage through the soil
D. pH determines the size of earthworms present in the compost

3. According to the EPA, _____% of our yard waste and food scraps goes to the landfill.

A. 5-10%
B. 20%-30% **********
C. 50-60%
D. 90-100%

4. What is compost?

A. Just another word for dirt
B. Dirt with added sand, silt or clay
C. A rich soil-like mixture that is produced when organic materials break down. **********
D. A mixture of soils that come from different locations.

5. What are the benefits of adding compost to soil?

A. Compost increases soil water retention and root penetration.
B. Increases nutrient holding capacity.
C. Increases soil nutrients.
D. All the above **********

6. What is composting?

A. The rotting process that road kill goes through after death
B. The process of bagging commercial potting mix for garden centers
C. The natural process of decomposition and recycling of organic material into a humus-rich soil amendment. **********

D. It's what happens when stray animals eat material from your compost bin.

7. What is required for successful composting?

A. A balance of 'carbons to nitrogens' as inputs
B. Adequate water, warmth and air (immediate environment)
C. Proper bacteria for breaking down plant-based material
D. All the above **********

8. How would you assure that your compost process is the most efficient/fastest?
A. Chop up/shred plant material headed to the bin
B. Add moisture during dry weather
C. 'Turn' the pile frequently
D. All the above **********

9. Composting microorganisms require the correct proportion of carbon and nitrogen – called the C/N ratio – to function efficiently. What is the ideal C/N ratio?
A. There is no 'ideal ratio'
B. 1:1
C. 1:30
D. 30:1 **********

10. What are biodegraders?

A. Bacteria, fungi, molds, earthworms, insects, and other soil organisms. **********
B. Neighborhood wildlife
C. The people who bag the compost for later sale
D. The students at a competing school across town who also are studying composting

11. Why does a compost pile need biodegraders?

A. They really don't need biodegraders
B. To eat up all the plastic and metals in your bin
C. To help in sorting the good compost from the bad compost
D. They break down the organic material you place in your compost pile. **********

12. What happens if the C/N ratio of the compost pile is too high (excess carbon)?

A. Decomposition slows down and nitrogen is depleted. **********
B. Nothing
C. The compost will have a tendency to be 'poisonous' to plants
D. Everything breaks down too quickly

13. What happens if the C/N ratio of the compost pile is too low (excess nitrogen)?

A. It starts to smell great, sorta like flower blossoms

B. It will heat up to a dangerously high temperature
C. Wastes nitrogen by letting it escape into the air, causing unpleasant odors. **********
D. Nothing

14. Carbon materials are referred to as the 'browns'. What are some examples?

A. Any kind of dead animal carcasses
B. Bones
C. Leaves, dead plants, straw, hay, newspaper, eggshells, wood chips, sawdust **********
D. Coal

15. Nitrogen materials are referred to as the 'greens'. What are some examples?

A. Fresh leaves or plants, kitchen scraps, coffee grounds, tea bags, weeds, green grass, manure and bedding **********
B. Bones
C. Any kind of dead animal carcasses
D. Plastics & styrofoam

16. What should never be added to a compost bin?

A. Meat scraps, bones, dairy products, oils, fat, citrus rinds **********
B. Banana peels
C. Grass clippings
D. Earthworms

17. What is earthworm composting called?

A. Very-wormy-composting
B. Vermicomposting **********
C. Viticulture
D. Pomology

18. How long does it take for the compost to be ready to put on the garden?
A. A week
B. About a year
C. A finished compost can take anywhere between 6 weeks to 18 months. The healthier the pile, the quicker it will decompose. **********
D. Compost is pretty consistently ready in 2-5 years

19. Worm castings (a.k.a. worm manure, or worm excreta) are rich in what?

A. Actually nothing!
B. Plant nutrients, trace minerals and growth enhancers. Also, incorporating castings into the soil significantly increases microbial life in the root zone. **********
C. Fluoride (good for your teeth!)

D. Several highly toxic chemicals

20. How does learning about composting relate to 'Sustainable agriculture'?

A. The bio-tech-decomposition process holds great promise for alternative energy production.
B. The knowledge is transferable from home composting to large-scale farming operations
C. The composting process holds promise for large scale disposal of plant-based waste
D. All the above **********

Jones, Jeffrey R.

From: Sam Lawrence <slawrence@bgcs.k12.in.us>
Sent: Monday, December 08, 2014 2:06 PM
To: Jones, Jeffrey R.; Clinton Bullock
Subject: Re: idea

Jeff,

Saw Matt from Indy's Urban Gardens on PBS last week. It made me realize that when future presenters come in Clinton and I could project some photos on the screen if they wanted to help the students visualize what they do.

Hope this helps,

Sam

Carbon and Nitrogen Collection:
Students are measuring food collection collected daily.

First 2 weeks: we were collecting 51 pounds of waste a day on average of 255 pounds per week.

Week 3-Present, we have been collecting closer to 85 pounds a week.

What changed? The students were required to take a fruit if they wanted a free breakfast, no matter if they were going to eat it or not, the first 2 weeks. We were getting 3 buckets of apples and bananas that were hardly touched and tossing them into the dumpster.

We have been shredding paper and putting it into the worm bins to prevent them from being too wet. We have also been using the rabbit's used shavings to feed the worms when we clean out the cage each week.

Measurements:
We collected temperatures outside and inside the worm compost to determine when we needed to add the heating elements to keep the worms at the desired temperature during the first period of cold that we experienced.

We tested the pH of the castings when determining what ratio of media to add to our raised beds.

Casting Collections:
We have started to collect the worm castings and spread them on our raised beds in preparation for a spring planting.

Future Activities:
N-P-K nutrient test
Planting a strawberry patch
Problem Solving (when things go wrong)

Composting in the Curriculum

Beginning of the year:

We introduce the students to measuring using accurate units in project 3.1.4 "Mad Science". The students design their own lab using the scientific method to record volume, mass, pH, and temperatures. They present to the class their

My goal is to have the students be able to apply this to the many measureable inputs and outputs that are in compost. This is a beginning of the year activity.

Middle of the year:

In project 5.1.3 "From Farm to Fork" students research the production, transportation, processing, and distribution of food items. They present to the class the different locations, careers, and change that happen to the food items.

My goal is to have the students use the measured compost in raised beds to better identify with how the production occurs.

End of the year:

In problem 7.1.1 "Solving World Hunger," the students hold a formal meeting discussing the need to feed a growing population healthy food. They identify in small groups needs and research supporting evidence to address the needs. As an entire class they formally discuss what they can do to address the issue of world hunger.

My goal is to use composting recycled food waste to show students how to produce healthy foods. I hope to motivate them to address an agricultural need that could lead to a more sustainable life.