Oct 24, 2016
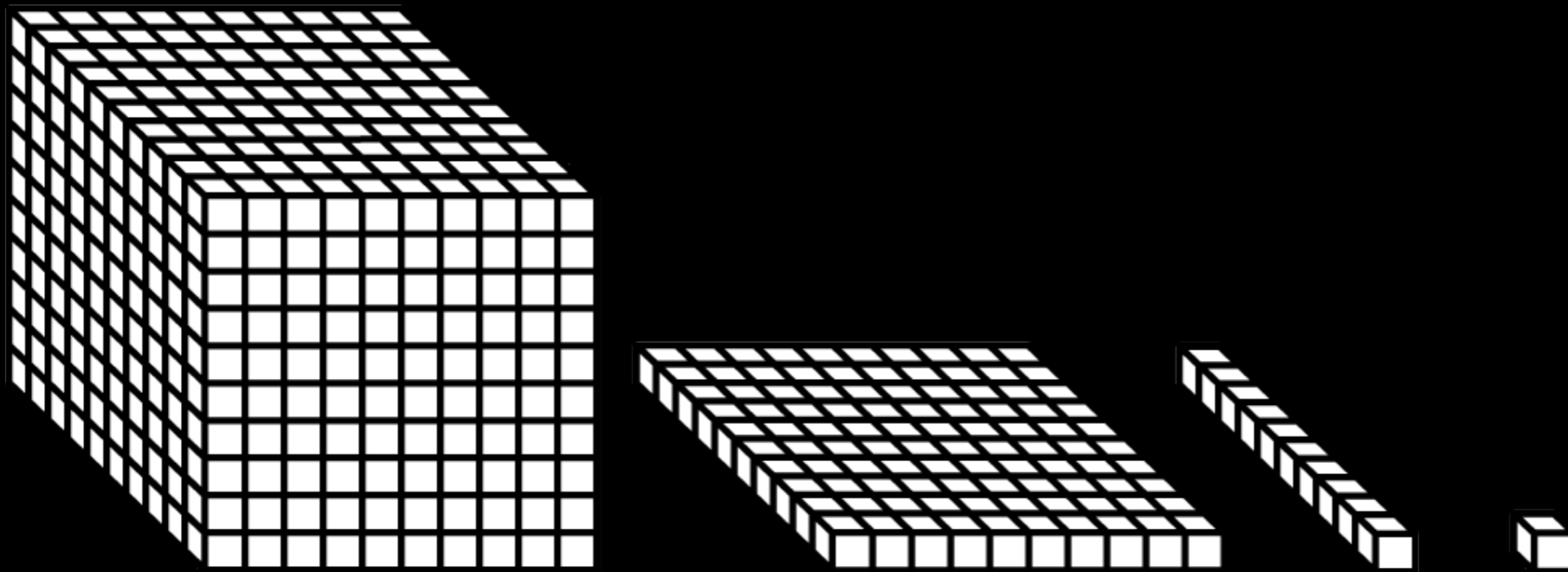
TRY STAND 2

- Weekend Highlights
- Desk Change
- Clean Desk

What comes next?
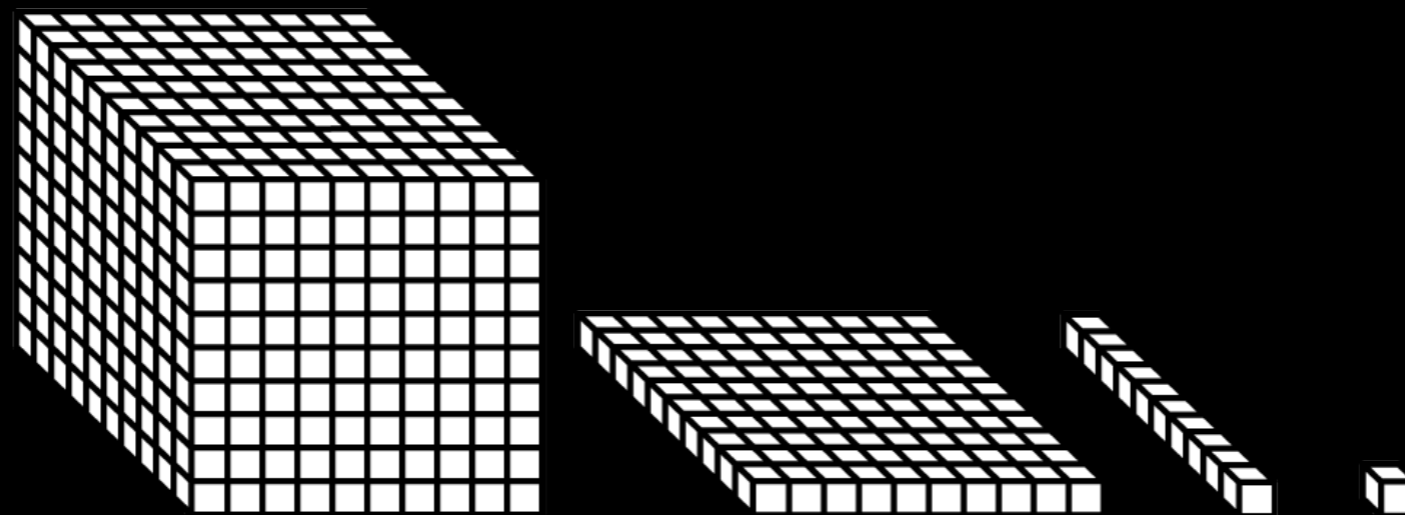
- Visualizing and Representing Numbers
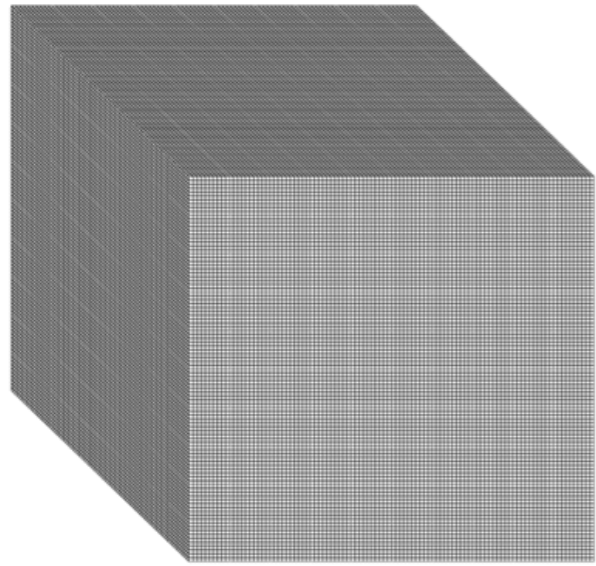
What comes next?
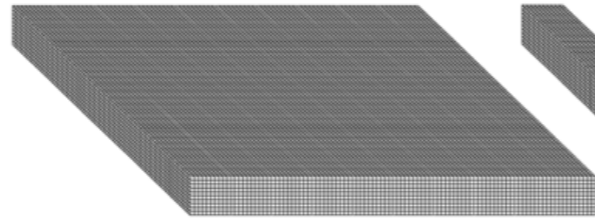
- Journal Entry- What did you notice?

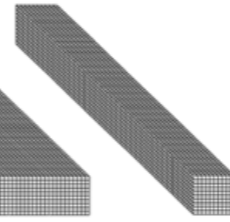A - Ha! Moment?

Describe the patter using words and pictures

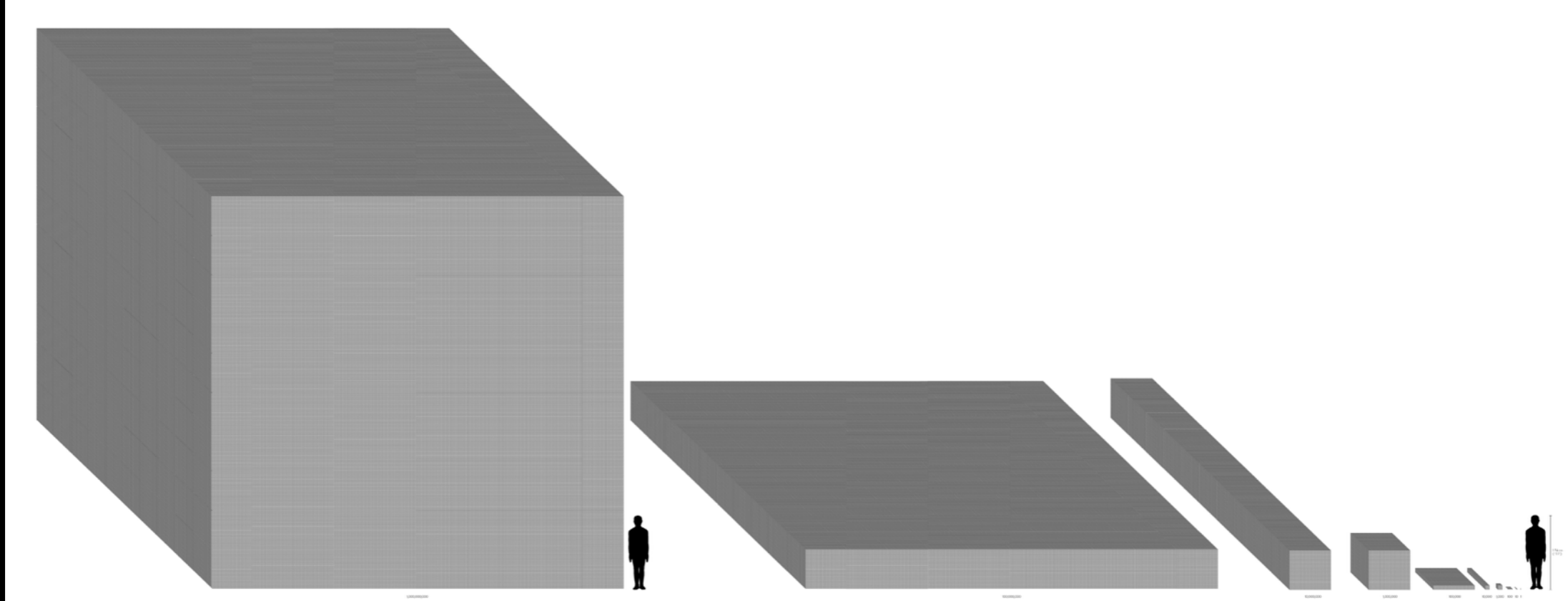1,000,000   100,000   10,000   1,000   100   10   1

174 cm
(~5'7")

One Billion Base 10 Blocks

Place Value

Billions	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						3,	5	8	7				
			2	9	4,	7	1	0	.	6	2	5
7	1	8,	0	6	0,	4	9	5	.	3		

Three thousand, five hundred eighty-seven

Two hundred ninety-four thousand, seven hundred ten and six hundred twenty-five thousandths

Seven hundred eighteen million, sixty thousand, four hundred ninety-five and three tenths

Model Form

The model form is a visual representation of a number using groups of blocks for each place value. Each block represents a different value depending on the number of cubes it has.

1,000 x 3 = 3,000

10 x 8 = 80

100 x 5 = 500

1 x 7 = 7
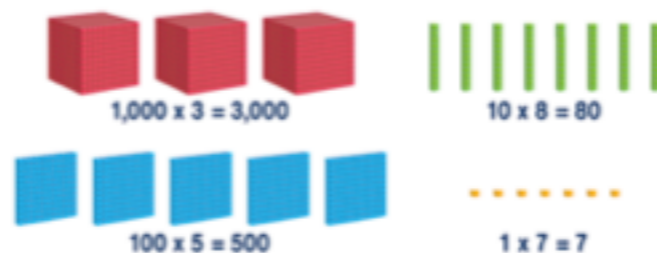
Expanded Form

The expanded form of this number can be written in two ways. Sample 1 is more commonly used, but both are correct.

3, 5 8 7

Sample 1:
3,000 + 500 + 80 + 7

Sample 2:
3,587 = (3 x 1,000) + (5 x 100) + (8 x 10) + 7

The place value is the value of a digit based on its position in a number.

Zero acts as a placeholder when there is no value in a column.

Numbers on the right of the decimal point represent a fraction of a whole number.

Trillions			Billions			Millions			Thousands			Trend Setter		
100s	10s	1s	100s	10s	1s	100s	10s	1s	100s	10s	1s	100s	10s	1s

Million	Million	Million
2	10^9	Billion
3	10^{12}	Trillion
4	10^{15}	Quadrillion
5	10^{18}	Quintillion
6	10^{21}	Sextillion
7	10^{24}	Septillion
8	10^{27}	Octillion
9	10^{30}	Nonillion
10	10^{33}	Decillion
11	10^{36}	Undecillion
12	10^{39}	Duodecillion
13	10^{42}	Tredecillion

How many pennies are there?

Guess as close as you can?

Give a guess you know is too high

Give a guess you know is too low

What do you need to know to be able to find out how many pennies are used to make the pyramid?

UNITED STATES MINT

Standard View

Specifications

Composition:	Copper-Plated Zinc: 2.5% Cu, Balance Zn
Weight:	2.500 g
Diameter:	0.750 in., 19.05 mm
Thickness:	1.55 mm
Edge:	Plain

2011 Lincoln One-Cent Obverse

2011 Lincoln One-Cent Reverse

13 pennies

Square pyramidal number

In mathematics, a **pyramid number**, or **square pyramidal number**, is a figurate number that represents the number of stacked spheres in a pyramid with a square base. Square pyramidal numbers also solve the problem of counting the number of squares in an $n \times n$ grid.

Geometric representation of the square pyramidal number $1 + 4 + 9 + 16 = 30$.
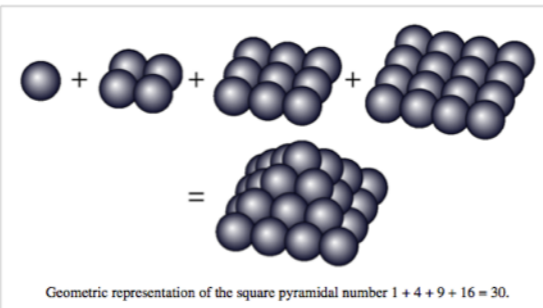
Formula

The first few square pyramidal numbers are:

1, 5, 14, 30, 55, 91, 140, 204, 285, 385, 506, 650, 819 (sequence A000330 in OEIS).

40 stacks

40 stacks
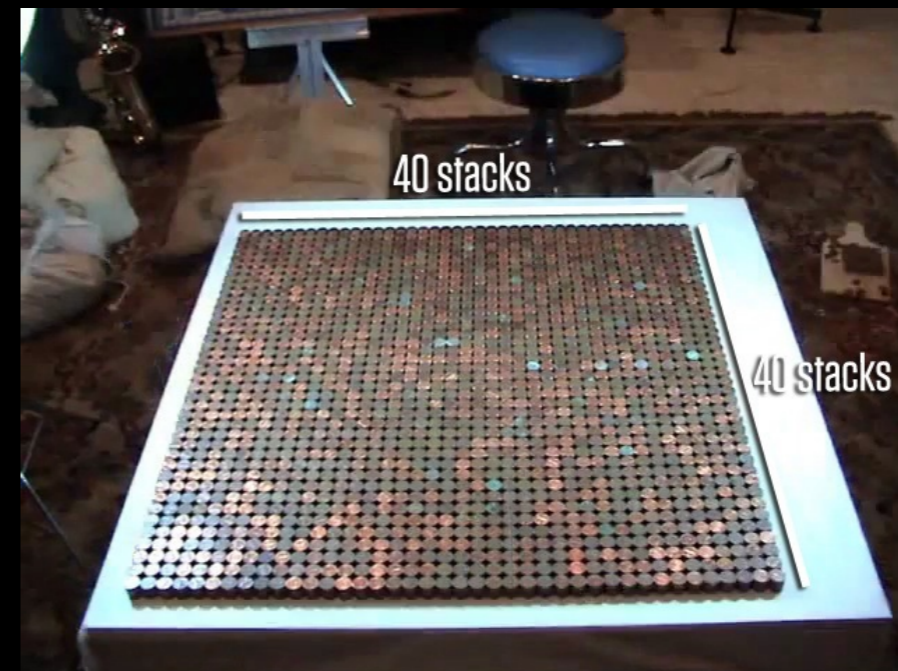
8.2b Properties of Liquids:
Surface Tension and Capillary Action

Dr. Suess "Surface Tension"

https://www.youtube.com/watch?v=a6LH81n8Cpl&list=PLQiZMu4fnATflF6cK8XjvqTKzEG02ddT8&index=25

October 26th, 2016

TRY STAND
2

You need:
- a completely clean desk
- base 10 blocks in a basket (several for each table group)
  - teenie cubes
  - rods
  - flats

Array, Array, Array

Create a rectangle that shows the equation

2 x 3
or
2 groups of 3

Array, Array, Array

Create a rectangle that shows the equation

7 x 5

Array, Array, Array

Create a rectangle that shows the equation

21 x 5

18 x 5

Neil

18

5

$(9+9) \times 5$
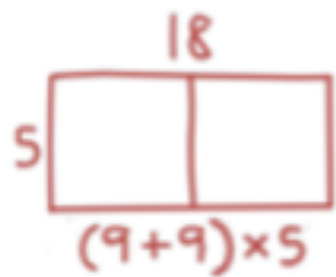
$45 + 45 = 90$

Ricardo

18

5

5

$18 \times 5 = 9 \times 10$

Sammi

18

5

10   8
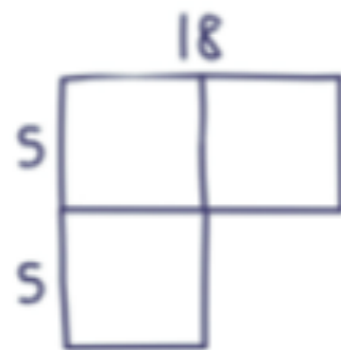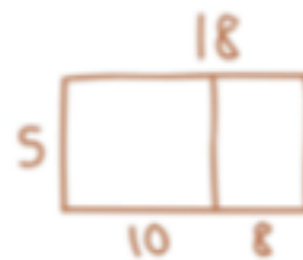
$(10 \times 5) + (8 \times 5)$
$50 + 40 = 90$

Jaime

18   2

5
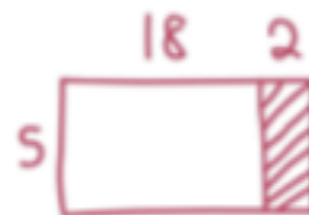
$20 \times 5 = 100$
$2 \times 5 = 10$
$100 - 10 = 90$

Ariane

15   3

5

$15 \times 5 = 75$
$3 \times 5 = 15$
$75 + 15 = 90$

Bryan

18

5

2
2
1

$(18 \times 2) + (18 \times 2) + 18$
$36 + 36 + 18 = 90$

What would 40x40 look like?

As a table group create one quadrilateral that represents 40x40 in your group

Pyramid of Pennies

Sharing Your Work

What did you do?

Why did you do what you did?

Use numbers, words, and pictures to share your thinking

Pyramid of Pennies

Sequel: You choose

1.   How heavy is the pyramid?

2.   If I have one million pennies, what kind of pyramid can I make?
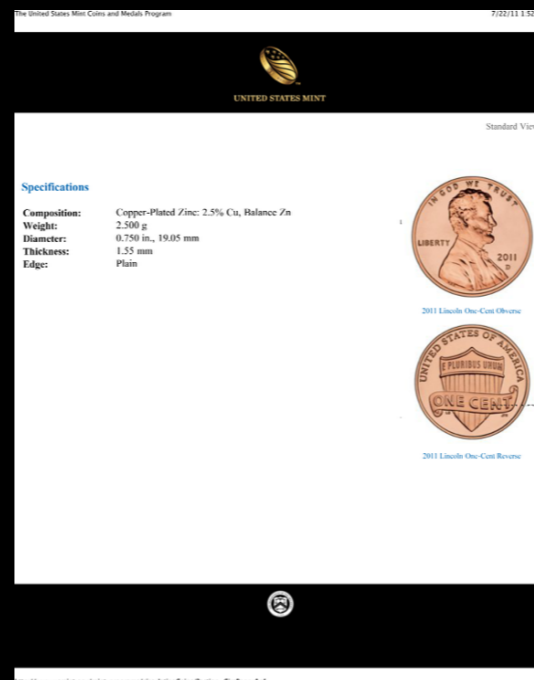
Let's Be Journalists:

1. Choose a Theme
   - Favourite Vacation Ever
   - Favourite Things To Do In Calgary
   - Most embarrassing thing your Mom, Dad or another family member ever did

2. Create a list of questions
3. Use a marker as a microphone
4. Take the interview seriously, be a generous interviewee

Dichotomous Key

Classifying Mixtures

What is a dichotomous key?

- tool that allows the user to determine the identity of a certain item (like, for example, a tree, a flower, an animal or a simple object)

- "Dichotomous" means "divided into two parts". Therefore, dichotomous keys always give two choices in each step.
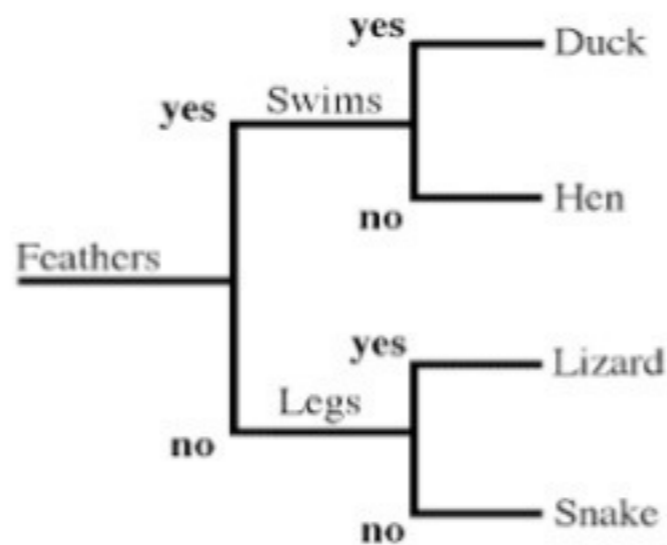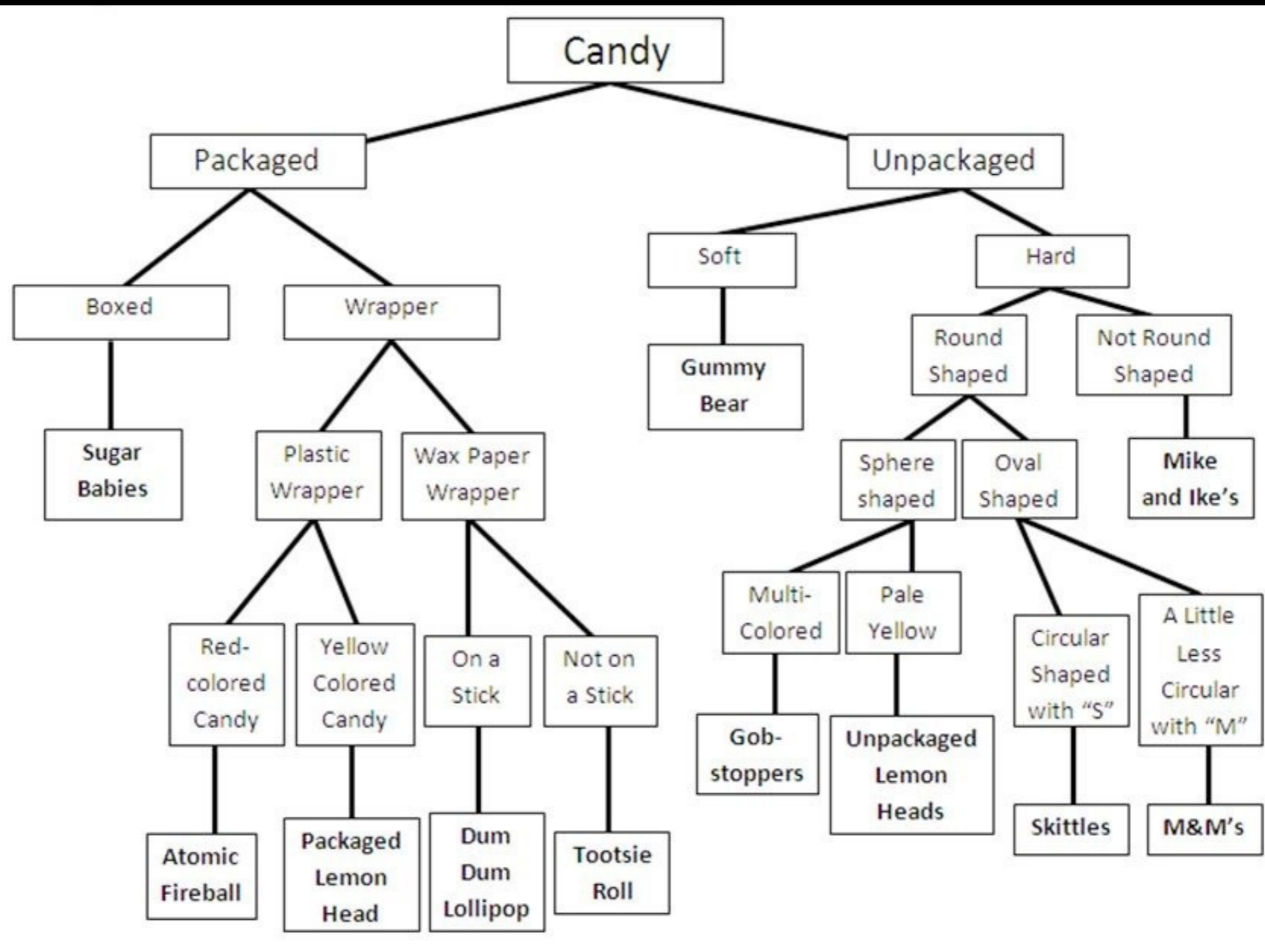
PLANTS

DON'T MAKE SEEDS

Has no true roots, stems or leaves

Has roots, stems and leaves

FERNS

Has no roots, stems or leaves structure

ALGAE

Has some roots, stems or leaves structure

MOSSES

MAKES SEEDS

No Flowers (gymnosperms)

CONIFERS

Flowers (angiosperms)

SUNFLOWER

```
                                              _____ Queen of Hearts
                                         female
                           picture card
                                         male...............
              hearts
                           number card   5 or over.............
red
                                         under 5................
                                     ...................
              not hearts
                                     ...................

                                 ......................
              spades
                                     ....................
black
                                     ....................
              not spades
                                 ....................
```
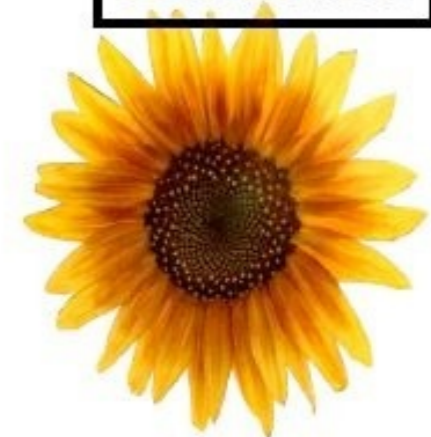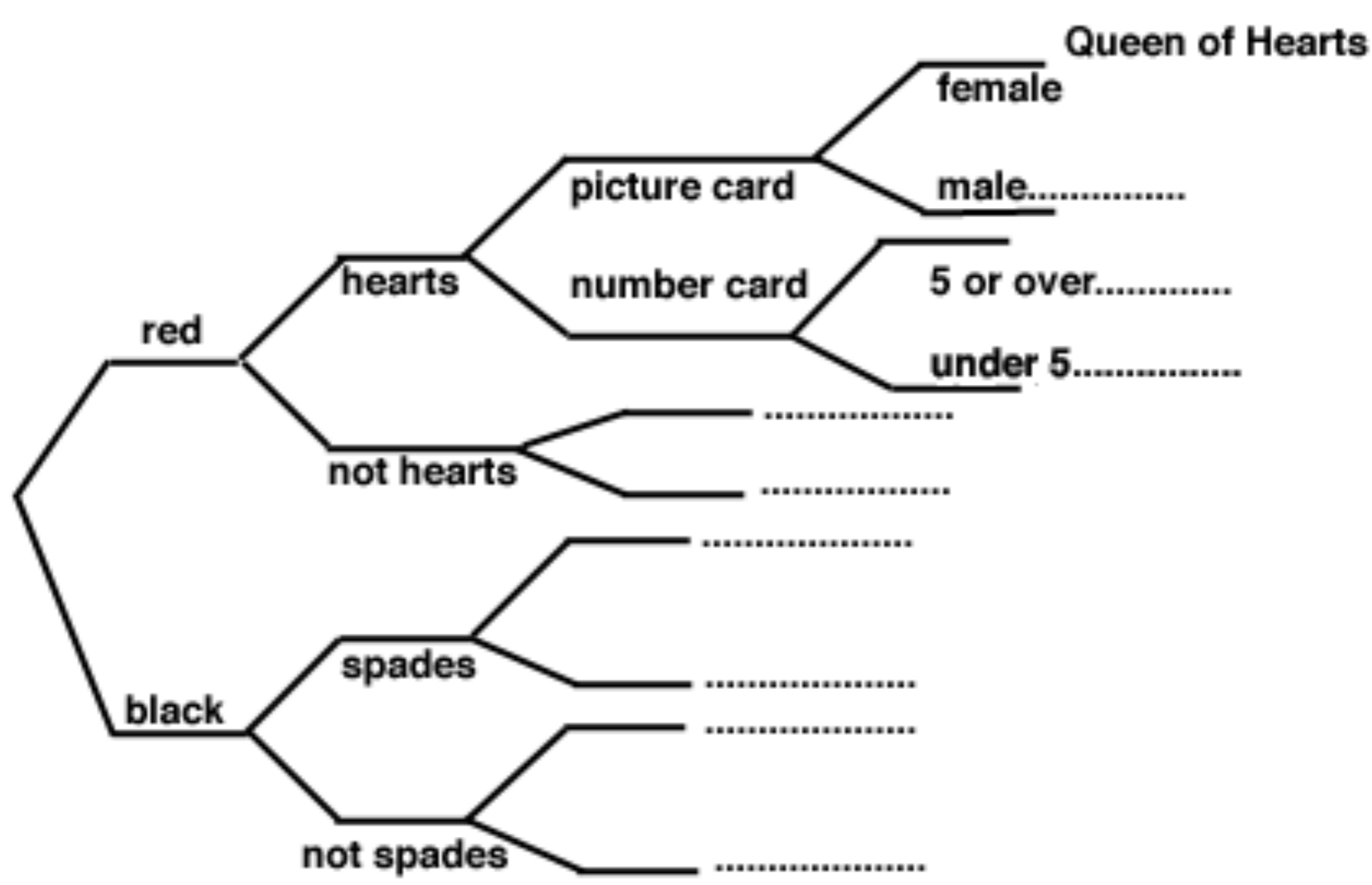
What Tree Is That?
Use the key to identify the three unknown trees shown below.

1. Leaves alternate 2
   Leaves opposite or whorled... 7
2. Leaves simple 3
   Leaves compound 6
3. Leaves fan-shaped with notch at tip .... gingko
   Leaves not fan-shaped, lacking notch at tip 4
4. Leaves entire .... magnolias
   Leaves lobed or toothed.. 5
5. Leaves lobed.. oaks
   Leaves toothed .... elms
6. Leaflets small.. honeylocust
   Leaflets large .... yellowwood
7. Leaves whorled .... catalpa
   Leaves opposite 8
8. Leaves simple 9
   Leaves compound 10
9. Leaves palmately lobed .... maples
   Leaves entire .... dogwoods
10. Leaves palmately compound .... buckeyes
    Leaves pinnately compound .... ashes

Leaf Types Used in Key

fan-shaped   entire   lobed   toothed   small leaflet

large leaflet   whorled   opposite   compound   palmately lobed
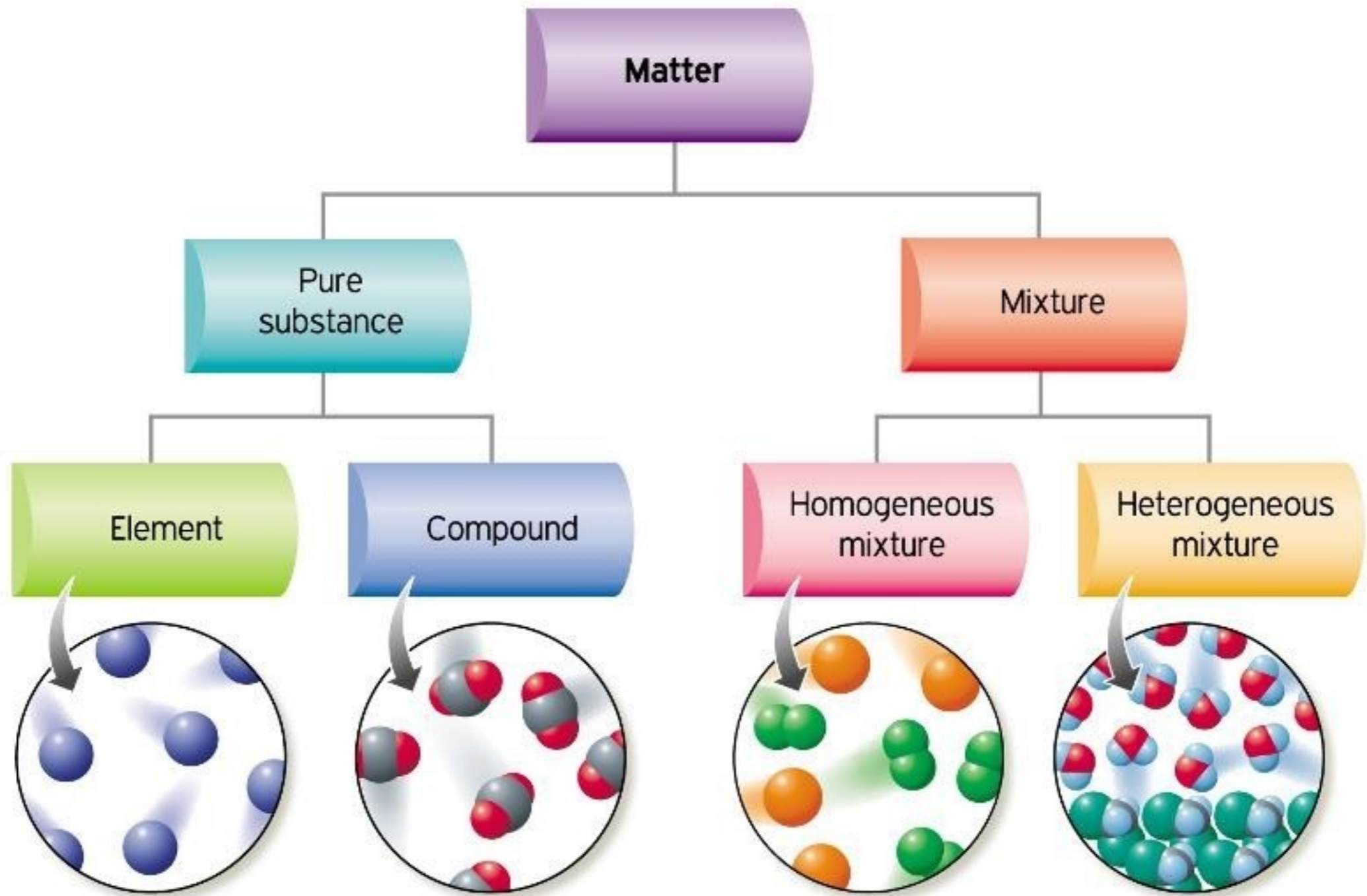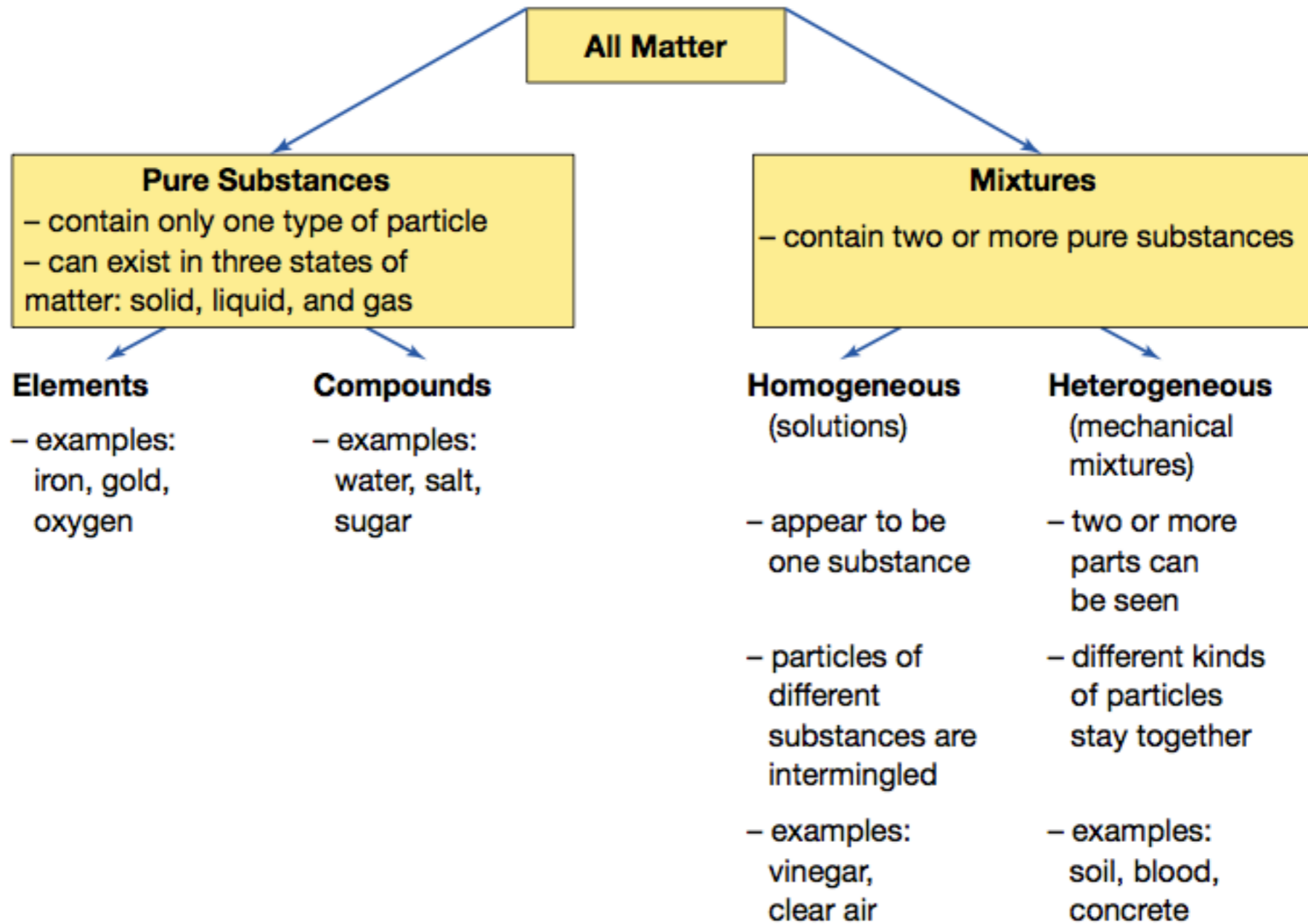
palmately compound   pinnately compound   simple

Unknowns:

Classification of Matter

All Matter

Pure Substances
– contain only one type of particle
– can exist in three states of matter: solid, liquid, and gas

Elements
– examples: iron, gold, oxygen

Compounds
– examples: water, salt, sugar

Mixtures
– contain two or more pure substances

Homogeneous
(solutions)

– appear to be one substance

– particles of different substances are intermingled

– examples: vinegar, clear air

Heterogeneous
(mechanical mixtures)

– two or more parts can be seen

– different kinds of particles stay together

– examples: soil, blood, concrete

MIXTURE

is made up of **two** or **more** substances mixed together.

They are NOT chemically combines so each substance keep their own properties and identity. Some mixtures are easy to separate.

heterogeneous
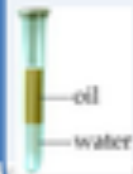
- not the same throughout

e.g. oil and water

homogeneous

same composition- look the same throughout

e.g. food colouring and water

suspensions

a mixture in which the particles are so large that they settle out unless you stir it

e.g. sand and water

colloids

mixture consisting of particles that are in between the size of solutions and suspensions

e.g milk

solutions

particles are very small. can pass through filter paper.

e.g food colouring and water

Kicha M. 2011

OOBLIK ReDo

- observe the mixture
- use the dichotomous key to classify the mixture
- create a plan to "fix" the ooblik
- execute the plan