Name _____ Date _____ Period_____

Free Body Diagram

Nov.6 Free Body Diagram (FBD) Chapter 4.3 of CK12.org

Instruction(s): Draw a FBD in each picture, and show each force acting on the object (or the system). List of forces: Normal Force (F_N); Weight Force (F_w); Friction Force (F_F); Gravity Force (F_G); Applied Force (F_A)

1. A book is at rest on a tabletop. Diagram the forces acting on the book.

2. A gymnast holding onto a bar, is suspended motionless in mid-air. The bar is supported by two ropes that attach to the ceiling. Diagram the forces acting on the combination of gymnast and bar.

3. An egg is free-falling from a nest in a tree. Neglect air resistance. Diagram the forces acting on the egg as it is falling.b

4. A flying squirrel is gliding (no *wing flaps*) from a tree to the ground at constant velocity. Consider air resistance. Diagram the forces acting on the squirrel.

5. A rightward force is applied to a book in order to move it across a desk with a rightward acceleration. Consider frictional forces. Neglect air resistance. Diagram the forces acting on the book.

Name _____ Date _____ Period_____

Free Body Diagram

Free Body Diagram (FBD) Chapter 4.3 of CK12.org

Instruction(s): Draw a FBD in each picture, and show each force acting on the object (or the system). List of forces: Normal Force (F_N); Weight Force (F_w); Friction Force (F_F); Gravity Force (F_G); Applied Force (F_A)

1. A rightward force is applied to a book in order to move it across a desk at constant velocity. Consider frictional forces. Neglect air resistance. Diagram the forces acting on the book.

2. A college student rests a backpack upon his shoulder. The pack is suspended motionless by one strap from one shoulder. Diagram the vertical forces acting on the backpack.

3. A skydiver is descending with a constant velocity. Consider air resistance. Diagram the forces acting upon the skydiver.

4. A force is applied to the right to drag a sled across loosely packed snow with a rightward acceleration. Neglect air resistance. Diagram the forces acting upon the sled.

5. A football is moving upwards towards its peak after having been *booted* by the punter. Neglect air resistance. Diagram the forces acting upon the football as it rises upward towards its peak.

6. A car is coasting to the right and slowing down. Neglect air resistance. Diagram the forces acting upon the car.

Name _____ Date _____ Period_____

Free Body Diagram

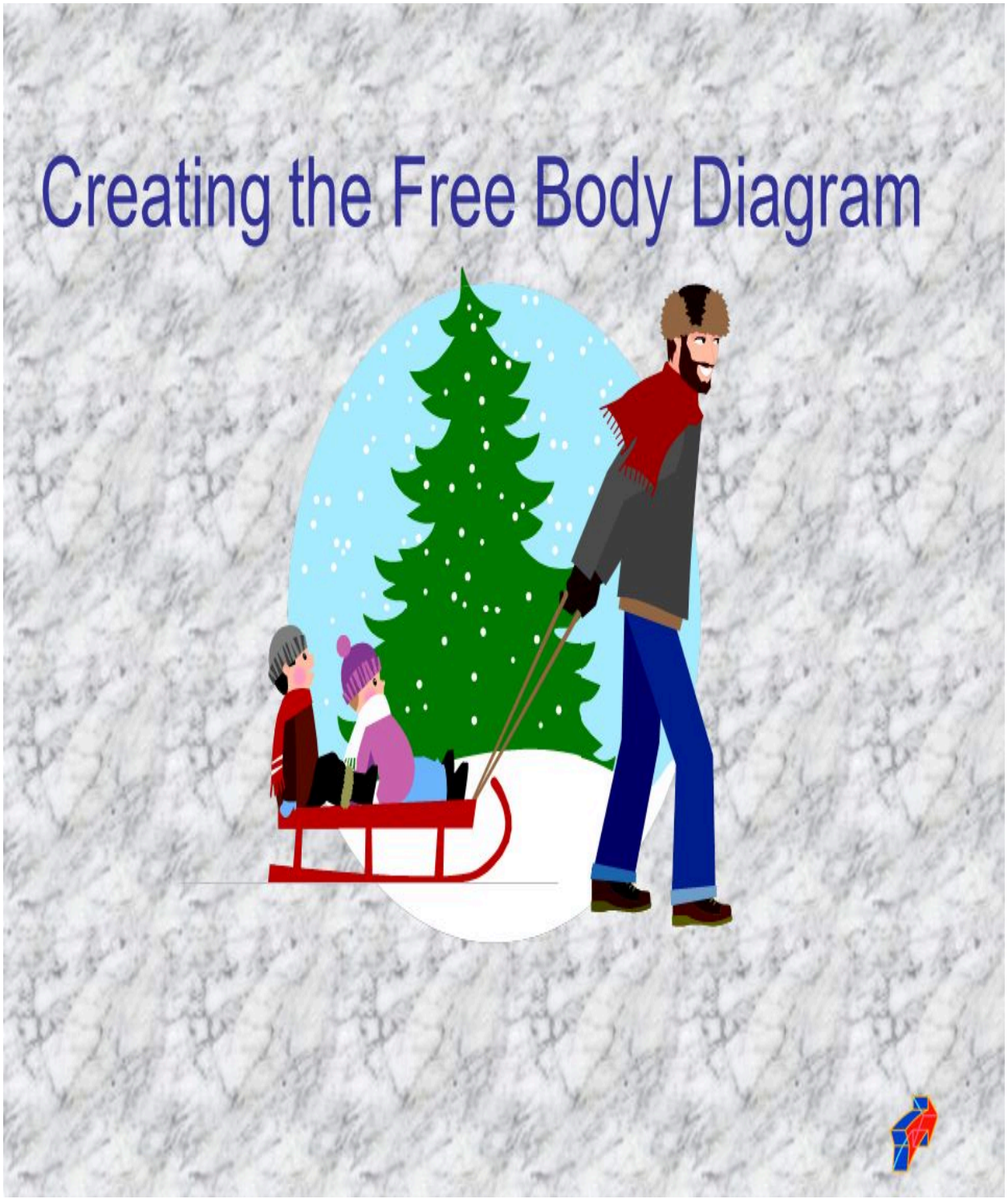
Nov.8 DAY 3/ DAY 4 Activity - Number of forces acted on the object? Which forces are acting on the object?

Neglect air resistance.

Name _____ Date _____ Period_____

Free Body Diagram

Neglect air resistance.



Name _____ Date _____ Period_____

Free Body Diagram

Name _____ Date _____ Period_____

Free Body Diagram

Neglect air resistance.

Name _____ Date _____ Period_____

Free Body Diagram

Neglect air resistance.

Name _____ Date _____ Period_____

Free Body Diagram

Neglect air resistance.

Name _____ Date _____ Period_____

Free Body Diagram

The system (sleigh and Santa) are coasting (or sleigh set to cruise control). Neglect air resistance.

Name _____ Date _____ Period_____

Free Body Diagram

Name _____ Date _____ Period_____

Free Body Diagram

Name _____ Date _____ Period_____

Free Body Diagram

Name _____ Date _____ Period_____

Free Body Diagram

Nov.8 - Complete the activity using the Gizmo - Free Fall Laboratory
Collect the data.

Rock	Mass (m) = 1 g	Mass (m) = 50 g	Mass (m) = 100 g
Air	F_{Net}= 0 N	F_{Net}= -0.42 N	F_{Net}= -0.9068
No Air	F_{Net}= N	F_{Net}= N	F_{Net}= N

- Draw the Free Body Diagram

Rock	Mass (m) = 1 g	Mass (m) = 50 g	Mass (m) = 100 g
Air			
No			

-

Real World -
http://www.engr.uconn.edu/~cassenti/ME1166/ENGR1166%20Lecture%2003%20-%20Statics.pdf
https://www.real-world-physics-problems.com/amusement-park-physics.html

Catapult - https://www.real-world-physics-problems.com/catapult-physics.html