**Free-Body Diagrams – ROCK!** 11/3/14Name:

Date:

Free-body diagrams are pictures of the force vectors on an object. The vectors are drawn at the proper direction, and scaled so longer vectors represent bigger forces. Draw accurate free-body diagrams showing **all the forces acting on the rock**, and no other forces. Use ruler and a pencil so that if you make a mistake, you can correct it. Label the forces using the following symbols: [ALWAYS START BY DRAWING WEIGHT, THE FORCE OF GRAVITY!]

**Fg** = weight of the rock **FA** = applied force (a push, for example) **T** = tension (pulling force)

**FN** = normal force, **Ff** = friction (acts parallel to surface where two objects touch)

(Remember that the Normal Force is perpendicular to the surface pushing on the rock.)

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| 1. At rest. (example)    **T2**  **Fg**  **T1** | 2. At rest. | 3. At rest. |
| 4. At rest. | 5. Sliding at constant velocity. | 6. Slowing because of friction. |
| 7. At rest (friction is preventing  sliding) | 8. Slipping and accelerating. | 9. Falling without friction |
| 10. Falling at constant (terminal)  velocity. | 11. At rest. | 12. At rest. |