

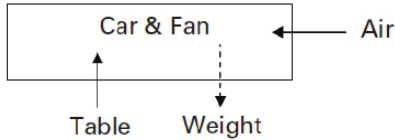
Name _____

Period _____

Warm-Up

The free body diagram below shows some of the forces acting on the Fan Car.

- Gravity
- Contact
- Distance
- Counteract
- Cancel
- Reinforce
- Horizontal
- Vertical
- Static Friction
- Dynamic Friction

| A—BEFORE fan is switched on | B--When fan turned on, but car NOT moving | C—Fan turned on, car moving |
|------------------------------------|--|---|
| | |  |

Make sure to label all forces!

1. In column A--Draw a free body diagram of the fan car before the fan is turned on. Use a “giant” arrow to show the direction of motion (if there is motion).
2. In column B—Draw a free body diagram of the fan car after the fan car is turned on, but BEFORE the car is moving. Use a “giant” arrow to show the direction of motion (if there is motion).
3. In column C—add any forces that are missing. The length of the arrows should be correct. Use a “giant” arrow to show the direction of motion (if there is motion).

Name _____

Period _____

| | 2 | 3 | 4 | 5 |
|--------------------|---|--|---|---|
| Claim | No claim | Claim unrelated to question or is unclear. | Claim answers the question. | Claim clearly and completely answers the question. |
| Evidence | No supporting evidence indicated, includes inappropriate evidence | Some supporting evidence indicated, may include inappropriate evidence. | Most supporting evidence indicated and is appropriate. | All supporting evidence indicated and is appropriate. |
| Reasoning Complete | No Reasoning | Does not provide reasoning, or only provides reasoning that does not link evidence to claim. | Some attempt is made to relate evidence to underlying principles, but there are missing pieces. | All of the ideas necessary to link the evidence to the claim are included. |
| Reasoning Accuracy | No Reasoning | The links between the evidence and the claim are based on incorrect ideas. | Some evidence is tied to the claim by scientific principles established in the class. | The evidence is tied to the claim by scientific principles established in the class, AND there are NO "extra" ideas that are incorrect. |