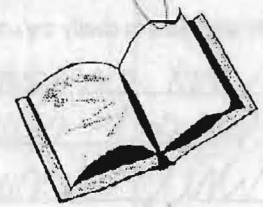


V4 Outstanding! May I scan and post on Angel? *was*

Reading Log



Any fact facing us is not as important as our attitude toward it, for that determines our success or failure.
—Norman Vincent Peale

Before Reading

My learning objectives are: To understand the main topics & find information that is unclear
My learning performance criteria are: To try to understand what I am reading, not just to breeze over it.
Estimated time to spend reading: 40 minutes

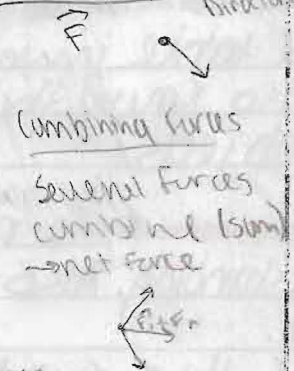
First Reading Notes

Preview, observations, and questions:
(Headings, topic sentences, tables, illustrations)

S.1 Force

- Push or pull
- Acts on an object
- Requires an agent
- Vector quantity
- contact
- long-range

Force Vectors



S.2 A Short Catalogue of Forces

- Gravity \rightarrow long range \vec{F}_G (points \downarrow)
- Spring \rightarrow contact \vec{F}_{sp}
- Tension \rightarrow when a string etc. pulls on an object \vec{F} (in direction of rope)
 - Atomic model
- Normal force \rightarrow pushing is done by molecular springs \vec{n} (perpendicular to surface)
- Friction \rightarrow Exerted bet a surface (tangential to surface) \vec{f}
 - Kinetic friction
 - Static friction
- Drag \rightarrow (opposite direction of motion)
- Thrust \rightarrow jet
- Electric & magnetic forces \rightarrow

S.3 Identifying Forces

- Identify all forces acting on an object

Glossary (2nd reading)

Term	Definition, term used in context or a phrase
Force	Push/pull \rightarrow very specific action
Force Acts as an Agent	Force is applied to something
Agent	The cause of the force
Contact forces	Force that acts on an object by touching
Long-Range forces	No physical contact. ex: magnets
Force vectors	will give on particle, point in direction of force & magnitude
Net Force	Vector sum of all forces
Gravitational force	Pull of planet on objects (agent is planet)
Spring Force	push (compressed) or pull (stretched)
Tension force	rope, wire, pulls on an object
Atomic model	balls & springs for atoms
Normal force	force exerted by a surface against an object pressing against surface (perpendicular)
Friction	causes objects to stay in place (tangent)
Kinetic friction	slides across surface (opposes motion)
Static friction	prevents motion (points in direction to prevent motion)
Drag	leaf moving through air, liquid, etc.
Thrust	rocket propels gas molecules at a high speed
Identifying Forces	<ul style="list-style-type: none"> • identify object & draw a picture • draw circle around object • locate where anything comes in contact w/ object • label force

Second Reading Notes

Inquiry questions to clarify my understanding of the material:

1. What constitutes the forces executed by compressing/stretching a spring
2. What is meant by "long range"
3. Why is normal force perpendicular to the surface
- 4.

(visual example)

Summarize Reading

The most important points of the reading were: There are many different forces acting on an object. It is also important that we are able to recognize the direction the force has on the object. For problem solving it is important to identify the object of the motion you want to study & draw a picture.

Actual time spent reading: 50 min.

Integrate Knowledge

The relationship between this new information and my previous ^{physics} computer knowledge and experience is: I knew of friction & a book sitting on a table in which the table exerts an upward motion. I also know that gravity has a downward force on all objects.

Assessment of Learning Performance

I suggest the following change(s) in my reading habits to improve my learning performance: To not read for definition, but for more understanding. Also to clarify issues I am not clear about.

My reason for making this suggestion(s) is: Sometimes I think I understand material when I really don't.

The following two factors most affected (positively or negatively) the quality of my reading performance:

1. Reading outside (positively)
2. Using this log (positively)

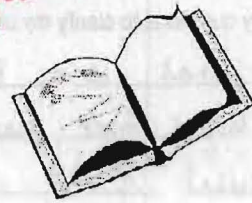
Rereading Notes

Significant new understanding of major ^{physics} computer technology concepts: There are many many types of important forces I had no idea of, such as drag, thrusts, normal force & spring force. I also learned how important the magnitude & direction of the vectors we draw are. The vectors should be able to explain clearly what is occurring.

✓x *Understanding!*
may I scan and post on Angel?

Reading Log

Any fact facing us is not as important as our attitude toward it, for that determines our success or failure.
 —Norman Vincent Peale



Date 9/6/2000

Before Reading

My learning objectives are: Define Force, identify specific forces acting on an object, know relationship between Force and Motion

My learning performance criteria are: Define and become familiar with Forces and how they effect motion.

Estimated time to spend reading: 2 Hrs.

First Reading Notes

Preview, observations, and questions:
 (Headings, topic sentences, tables, illustrations)

- To understand the CAUSE of motion we use dynamics (mechanics)

- The fundamental principles of mech. explains how motion occurs as a consequence of forces.

S-1

① What is a FORCE?

② What is the connection between force and motion?

S-3

③ Identify all of the forces acting on an object.

④ Use Newton's laws and Kinematics to determine the motion.

Forces

- | | |
|---------------------------------------|------------------------------------|
| ① General Force (\vec{F}) | ⑥ Static Friction (\vec{f}_s) |
| ② Gravitational Force (\vec{F}_g) | ⑦ Kinetic Friction (\vec{f}_k) |
| ③ Spring Force (\vec{F}_{sp}) | ⑧ Drag (\vec{D}) |
| ④ Tension (\vec{T}) | ⑨ Thrust (\vec{F}_{thrust}) |
| ⑤ Normal Force (\vec{n}) | |

Glossary

Definition, term used in context or a phrase

Term	Definition, term used in context or a phrase
Net Force	— the vector sum of all the forces
Intro FORCES:	<u>Wavy lines</u>
Gravitational Force	— Long-range force of gravity, the entire planet pulling on the object
Spring Force	— the push or pull of a spring.
Tension Force	— the contact force exerted by a spring (wire) rope on an object.
Normal Force	— the force exerted by a surface against an object (that is pressing against the surface)
Friction \vec{F}	— the \vec{F} exerted by the surface.
① Kinetic Friction	— As the object slides across the surface.
② Static Friction	— \vec{F} that keeps object in place (stuck).
Drag	— A force that resists motion (fluid or air).
Thrust	— force exerted by thrust, ex. the force exerted on a rocket by exhaust gases.

TACTICS: IDENTIFYING FORCES

- ① Identify the object of interest
- ② Draw a picture of the situation
- ③ Draw a circle around the object.
- ④ Locate every point on the boundary of this wire where the objects touch the object of interest.
- ⑤ Name and label each contact force acting on the object.
- ⑥ Name and label Long-range forces.

Force - "A push or pull"
 87 - A force is a push or pull.
 - A force acts on an object.
 - A force requires an agent.
 - A force is a VECTOR.

- A force can be either a contact force...
 ... or a long range force

Second Reading Notes

Inquiry questions to clarify my understanding of the material:

1. What is a Force?
2. What force keep an object at rest. or keep it in motion?
3. What is the difference between kinetic friction and static friction?
4. How do Newton's laws apply to forces.

Summarize Reading (Actual time spent $\frac{1}{2}$ Hrs.) wow! most people spend 30-45 min.

The most important points of the reading were: Learning how forces are applied in the particle model. Forces are combined to produce a NET FORCE, given by the vector sum of ALL the forces. The various forces that were introduced (\vec{F} , \vec{F}_g , \vec{F}_{sp} , \vec{T} , \vec{n} , \vec{F}_o , \vec{f}_k , \vec{D} , \vec{F}_{thrust}). Being able to take a picture, and labeling all the forces that act on the object.

Actual time spent reading: _____

Integrate Knowledge

physics

The relationship between this new information and my previous ~~computer~~ knowledge and experience is: Force is also a vector, because the direction and magnitude are important. In order to quantify a force, knowing vectors is very important.

Assessment of Learning Performance

I suggest the following change(s) in my reading habits to improve my learning performance: An approach similar to this worksheet will be very helpful. Simply looking at tactics boxes and doing the homework did not go well for me on the first exam.

My reason for making this suggestion(s) is: I need a more conceptual understanding of Physics so that I have the basic tools to solve the complex problems.

The following two factors most affected (positively or negatively) the quality of my reading performance:

1. Re-reading the material.
2. Dissecting the reading to pick out the key learning objectives.

Rereading Notes

Physics

Significant new understanding of major ~~computer technology~~ concepts: I enjoyed reading the "Atomic-model" for understanding the behavior of large objects. Thinking of atoms and bonds as basic "balls and springs" helped with understand the Normal Force and Tension Force.