Mini-lessons on Newton's Laws of Motion

You will create a "mini-lesson" for your class—a short, interactive visual presentation on one of Newton's three laws of motion. Based on what your teacher requests, "you" may be an individual or a group, but in this write-up, we will assume "you" is a group. Your teacher will assign each group one of the three laws to present. You will need to conduct research for the project, consulting and referencing at least two outside sources. As part of the presentation, you must both describe/summarize the law, and demonstrate an application of the law.

Some pointers about research:

- In addition to the Internet, consider using a book or magazine.
    - Consider how to determine if your sources are reputable, and make this analysis a part of your presentation.
- Topics that you research could include:
    - How did Newton express the law? How did he demonstrate it was true? Did he present any applications of the idea?
    - Was Newton contradicting earlier scientific theory with his law? If so, what were the differences between his law and earlier theory?
    - Was the law accepted immediately, or was it challenged by his contemporaries?
    - What labs or projects can students perform to verify and demonstrate the law? These experiments should have a visual aspect.
    - What applications of the law are used in common devices, or do we often experience? Remember that you need to show one application of the law.
    - Optional: Do the laws apply as objects approach the speed of light, and if so, are they modified or limited in any fashion? Ask your teacher if this is an appropriate topic.

Some pointers about teamwork:

- Put together a schedule for the project, including spare (buffer) time for if/when things get delayed.
- Assign different parts of the project to team members.
- If there are differences of opinion on how to proceed, listen to each other, and determine a democratic way to make a decision.

Some pointers about how to present:

- Provide a general description/definition of the law.
- Have different team members present different parts of the lesson.
- Make it interactive—ask the audience questions.
- When you are designing your lesson, think about effective lessons you have enjoyed in the past, and include elements to make a good, effective lesson.
- Use digital media to enhance findings, reasoning, and to present evidence—a video, a simulation, etc. Consider when the media helps, and use it then, but do not use it when it interferes with the flow of your presentation.
- Organize your presentation into major points with supporting evidence. If there are contradictory points of view, explain them, and explain which viewpoint you support and why.
- Be clear about your sources and why you find them valid.
- Make sure you give an example that demonstrates the law.
- Use relevant language—in other words, use the vocabulary of the science and mathematics classes you are taking.
- Consider your audience: What do they know already (skip this or only cover it briefly) and what is new to them (focus the presentation on this)?