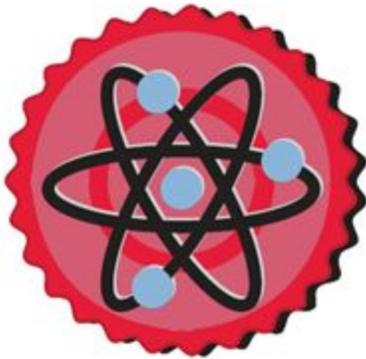


# 5<sup>th</sup> Annual Science Fair with Invention Convention



2015 Science Fair Packet – Scientific  
Investigation

Sponsored by: Manchester Public Schools and  
Manchester Town-Wide PTA

# 5th Annual District-Wide Science Fair with Invention Convention

## Scientific Investigation - Planning and Approval Sheet

Project Title: \_\_\_\_\_

Student Name(s): \_\_\_\_\_

Grade: \_\_\_\_\_ School: \_\_\_\_\_ Date: \_\_\_\_\_

1. Identify a testable question or problem.

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2. Research the topic. Document your research.

What do you want people to learn from this? \_\_\_\_\_

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Books I found in the library on my topic are:

**Title:**

**Author:**

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Internet sites I found on my topic are:

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People I talked to about my topic are:

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**3. Write a hypothesis.**

I think that \_\_\_\_\_

(will happen) because (my research shows...) \_\_\_\_\_

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**4. Design a procedure for your experiment:**

What will change (independent variable): \_\_\_\_\_

---

What will stay the same (controlled variables): \_\_\_\_\_

---

What will be measured (dependent variable): \_\_\_\_\_

---

**Steps in my procedure:**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_



**7. Timeline:**

School Science Fair Date: \_\_\_\_\_

Expected amount of time to perform experiment: \_\_\_\_\_

Expected completion date of presentation board: \_\_\_\_\_

Date by which all data is to be collected: \_\_\_\_\_

**Final Approval:**

\_\_\_\_\_ Approved                      \_\_\_\_\_ Not Approved

Approver Name: \_\_\_\_\_ Date: \_\_\_\_\_

**\*\*Please note: No major changes to investigation are allowed after final approval\*\***

# 5<sup>th</sup> Annual Science Fair with Invention Convention

## Rules and Requirements



All work presented must be the student's work.

- Parents can be guides. Adults can supervise the investigation, but not take part except in cases of safety.
- Students must cite research.

**ALL** projects should demonstrate one of the below:

1. **Invention Convention** (Grades K-8): Solve a problem by creating or inventing a solution.
2. **Scientific Investigation** (Grades K-8): Investigate a scientific principle or solve a problem using the scientific method. The scientific investigation should include the following elements:
  - Purpose
  - Hypothesis
  - Research
  - Experimentation
  - Conclusion
3. **Model of a System** (Grades K-8): Research how a system works, make a display board and build a model to show how this system works.

**ALL** exhibits for the Science Fair/Invention Convention must include a display board. This will be provided to you by your STEM Specialist.

### Eligibility/Limitations

- Students submitting work must be in Grades K-8 for Invention Convention, Scientific Investigation or Model of a System.
- Individual or group projects will be permitted for scientific investigation or model.
- Group projects will **not be allowed for Invention Convention**.
- **EACH project will be given up to 5 minutes for oral presentation before the judges.**

### APPROVAL AND DOCUMENTATION

- Every student must complete the **Invention Log** (for Invention Convention).
- Every student/group must complete the **Planning and Approval Sheet** (for Model or Investigation)
- **EACH Planning and Approval Sheet** must have been approved by the STEM Specialist before completing the final project.
- We encourage students to change their ideas while working through the scientific investigation, modeling and inventing process; however, due to safety considerations, major changes **cannot be made after project is pre-approved**.
- **Parents must complete Registration Packet, which includes Photo/Media Release and Safety Consent.**

**The following RULES MUST** be followed at the Manchester District Science Fair.

**Any exhibit which violates these safety rules will be disqualified.**

1. Anything which could be hazardous to the public is prohibited from display.

The **PROHIBITED** items include:

- Live disease-causing organisms which are pathogenic to man or other live vertebrates
- Microbial cultures (including plants) and fungi, live or dead, including unknown specimens
- Any flames (open or concealed )
- Highly flammable materials
- Syringes, pipettes and similar devices
- Liquified or solidified gases (e.g. "dry ice")
- Lasers
- Firearms or projectile launchers of any kind
- Tanks which contain, or have contained, combustible gases (e.g. propane)
- Taxidermy specimens or parts
- Preserved vertebrate or invertebrate animals
- Human or animal parts
- Poisons, controlled substances or hazardous chemicals
- Synthetic chemicals

If a student must use prohibited materials in carrying out the project, then the student should consider photographs, drawings, or other means of describing the project in the display.

Again, please note that students are encouraged to use photographs and drawings to illustrate their research. (For use of photographs of human subjects, written consent of the subject is required.)

2. All operating exhibits must meet the following requirements:

- Any exhibit producing temperatures exceeding 212 deg. F (100 deg. C) must be adequately insulated from its surroundings.
- Any moving belts or pulleys must be covered.
- Batteries with open-top cells are not permitted. (Other types of batteries may be used.)
- Electric circuits requiring 110-volt AC must have a UL-approved cord of proper load-carrying capacity, and that cord must be at least nine feet long.
- All electrical wiring must be properly insulated.
- Nails, tacks, or uninsulated staples must not be used to fasten electrical wiring.
- Where electrical switches are required in a display, standard enclosed switches must be used on circuits operating with more than 12 volts.
- Electrical connections in 110-volt circuits must be soldered or fixed under approved connectors and connecting wires must be properly insulated.

3. Some other safety rules to consider:

- Make sure you have an adult to assist you in the process and help you design a safe experiment
- Never eat or drink during an experiment, and keep the work area clean
- Wear the appropriate safety equipment during your experiment (goggles, gloves, apron, etc.)
- Respect all life forms. Do not perform an experiment that will harm an organism in any way.
- Use safety on the internet – always have an adult supervisor with you while you are researching your topic.