

MODEL ROCKETRY

Note: Please read 4-H Project Exhibit Rules on page 2.

Note to all units:

1. Rocket exhibits must relate to the skill level for the unit entered. Units 1-4 should include the color picture of the rocket and skill level title from the rocket-kit package as part of its record book. All project material must be organized and secured in a sturdy binder/notebook. Unit 6 must have a copy of plans or blueprints including instructions "step by step" to build the rocket.
2. Fins must be balsa wood (balsa, and basswood) and finished with paint in classes indicated. **No plastic fins for Units 1-3.**
3. Fins of plastic or other materials must be exhibited in Units 4 and 6.
4. Unit 4 members may build Skill Level 4 and Skill Level 5 rocket kits.
5. Rockets are to be displayed and held **vertically** by a substantial rod or support no taller than the rocket on a stationary base appropriate to the size of the rocket, not to exceed 12"x12"x1" thick. Only the rocket will be judged. Do not decorate the base. No triangular stands can be used for displaying the rocket.
6. Do not include live or expended engines in the rocket exhibited.
7. If the rocket is damaged in launching, it can still be judged for quality of construction, e-Record and pictures.
8. Display rockets cannot be used for the Rocket Fly Day competition at State Fair.
9. No launching pads should be used for displaying the rockets.
10. All rockets must be exhibited upright.
11. Launching your rocket is not a requirement. It is a good idea, however, to make 2 rockets –one for exhibit and one to launch if possible.

Note: Please read specific rules for your unit.

INTRODUCTION TO ROCKETRY—UNIT 1

Balsa Fins Only

Class 801	Introduction to Rocketry	Jr.
Class 802	Introduction to Rocketry	Int.
Class 803	Introduction to Rocketry	Sr.

Exhibit will consist of the following:

A. Completed Model Rocketry e-Record presented in a sturdy binder/notebook.

B. On the Model Rocketry page enter the rockets you built in this unit. Include the following information:

1. Model name; skill level; from a stock kit, modified kit or self-designed-and-built.
2. Power: single-stage, multi-stage: cluster.
3. The fuselage: single-tube or glider rear-engine or glider front- engine or glider canard.
4. Engine information: engine code, label color, and type of recovery system.

C. If a rocket was launched provide the following information on the Model Rocket page.

1. Number of times successfully launched; kind of launch pad used.
2. Kind of electrical system used.
3. Tracking method used.
4. Observer's distance from rocket; angle achieved and altitude achieved; any special problems before, during and after launching.
5. What did you do to overcome problems you encountered?

D. One rocket personally built or other display related to work done at Skill Level 1.

E. Project will be evaluated on the quality of the information completed in the e-Record (25 percent) and quality of the exhibit (75 percent).

BASIC MODEL ROCKETRY—UNIT 2

Balsa Fins Only

Class 804	Basic Model Rocketry	Jr.
Class 805	Basic Model Rocketry	Int.
Class 806	Basic Model Rocketry	Sr.

Exhibit will consist of the following:

A. Completed Model Rocketry e-Record presented in a sturdy binder/notebook.

B. On the Model Rocketry page enter the rockets you built in this unit. Include the following information:

1. Model name; skill level: from a stock kit, modified kit or self-designed-and-built.
2. Power: single-stage, multi-stage: cluster.
3. The fuselage: single-tube or glider rear-engine or glider front- engine or glider canard.
4. Engine information: engine code, label color, and type of recovery system.

C. If a rocket was launched provide the following information on the Model Rocketry page.

1. Number of times successfully launched; kind of launch pad used.
2. Kind of electrical system used.
3. Tracking method used.
4. Observer's distance from rocket; angle achieved and altitude achieved; any special problems before, during and after launching.
5. What did you do to overcome problems you encountered?

D. One rocket personally built or display related to work done at Skill Level II.

E. Project will be evaluated on the quality of the information completed in the e-Record (25 percent) and quality of the exhibit (75 percent).

INTERMEDIATE MODEL ROCKETRY—UNIT 3

Balsa Fins Only

Class 807	Intermediate Model Rocketry	Jr.
Class 808	Intermediate Model Rocketry	Int.
Class 809	Intermediate Model Rocketry	Sr.

Exhibit will consist of the following:

A. Completed Model Rocketry e-Record with completed questions in manual pages 31-35 presented in a sturdy binder/notebook.

B. On the Model Rocketry page enter the rockets you built in this unit. Include the following information:

1. Model name; skill level: from a stock kit, modified kit or self-designed-and-built.
2. Power: single-stage, multi-stage: cluster.
3. The fuselage: single-tube or glider rear-engine or glider front- engine or glider canard.
4. Engine information: engine code, label color, and type of recovery system.

C. If a rocket was launched provide the following information on the Model Rocketry page.

1. Number of times successfully launched; kind of launch pad used.
2. Kind of electrical system used.
3. Tracking method used.
4. Observer's distance from rocket; angle achieved and altitude achieved; any special problems before, during and after launching.
5. What did you do to overcome the problems you encountered?

D. One rocket personally built in unit or display related to work done at Skill Level III.

E. Project will be evaluated on the quality of the information completed in the e-Record (25 percent) and quality of the exhibit (75 percent).

ADVANCED MODEL ROCKETRY—UNIT 4

Finished fins of any type

Class 810	Advanced Model Rocketry	Jr.
Class 811	Advanced Model Rocketry	Int.
Class 812	Advanced Model Rocketry	Sr.

Exhibit will consist of the following:

A. Completed Model Rocketry e-Record with completed questions in manual pages 14-18 presented in a sturdy binder/notebook.

B. On the Model Rocketry page enter the rockets you built in this unit. Include the following information:

1. Model name; skill level: from a stock kit, modified kit or self-designed-and-built.
2. Power: single-stage, multi-stage: cluster.

3. The fuselage: single-tube or glider rear-engine or glider front- engine or glider canard.
4. Engine information: engine code, label color, and type of recovery system.

C. If a rocket was launched provide the following information on the Model Rocketry page.

1. Number of times successfully launched; kind of launch pad used.
2. Kind of electrical system used.
3. Tracking method used.
4. Observer's distance from rocket; angle achieved and altitude achieved; any special problems before, during and after launching.
5. What did you do to overcome any problems you encountered?

D. One rocket personally built in unit or display related to work done in Skill Level IV.

E. Project will be evaluated on the quality of the information completed in the e-Record (25 percent) and quality of the exhibit (75 percent).

DESIGNER MODEL ROCKETRY—UNIT 6

Finished fins of any type

Class 813	Designer Model Rocketry	Jr.
Class 814	Designer Model Rocketry	Int.
Class 815	Designer Model Rocketry	Sr.

Exhibit will consist of the following:

A. Completed Model Rocketry e-Record with design worksheets and completed questions in manual on pages 35-39, presented in a sturdy binder/notebook. Include a copy of the plans or blueprints on how to build the rocket.

B. If a rocket was launched provide the following information on the Model Rocketry page.

1. Number of times successfully launched; kind of launch pad used.
2. Kind of electrical system used.
3. Tracking method used.
4. Observer's distance from rocket; angle achieved and altitude achieved; any special problems before, during and after launching.
5. What did you do to overcome any problems you encountered?

C. One rocket personally designed, built (no kits) and used in unit or display related to work done.

D. Project will be evaluated on the quality of the information completed in the e-Record (25 percent) and quality of the exhibit (75 percent).

Note: For more information on displays and projects: www.colorado4h.org/project_resources/StateFairExhibitReq.pdf - look under Display Hints and Tips and Project Tips.