

# 2019

## NORWIN COUNCIL OF PTA'S

### SCIENCE FAIR INFORMATION PACKET

#### **CONTENTS:**

---

- I. What's New this Year
- II. Student information
- III. Useful Forms

#### **WHAT'S NEW THIS YEAR**

---

**Wording on judging forms revised (again) for additional clarity.**

Forms have been edited to assist students and parents in understanding what is being asked in each step.

# STUDENT INFORMATION

Thank you for your interest in the Norwin Science Fair! Each year is a chance for you to discover something new and exciting! If you're new to a science fair, this packet will help you get started on the adventure.

## STEP ONE: DECIDE IF THE SCIENCE FAIR IS RIGHT FOR YOU!

Decide if you think each of the following statements is 'True' or 'False'.

- T F 1) It is fun to learn about new things.
- T F 2) I think a lot about new ways to help people or make things work better.
- T F 3) I always am reading books about volcanoes, animals, space, weather, or nature.
- T F 4) I like to take things apart to try to see how they work.
- T F 5) I love to watch a spider spin a web or bees collect pollen or ants marching into their anthill.
- T F 6) I would like to tell if commercials are telling the truth about how well their products work.
- T F 7) I think the world is full of amazing things like rainbows, snowflakes, mountains, and stars.
- T F 8) I always ask questions like, "Why?" or "OK, but what would happen if we did THIS instead?"
- T F 9) It would be cool to design robots... or fast cars... or a fast car that turns into a robot.
- T F 10) I like to solve mysteries.

If you answered YES to at least one of those questions, then you probably would enjoy the science fair!

## STEP TWO: CHOOSE YOUR PROJECT TOPIC!

Almost anything can make a good science fair project, as long as you are interested in it!

Soccer? Yep.

Cooking in the kitchen? Can do!

Racing matchbox cars? Sure.

Feeding birds in your backyard? Yes!

The solar system? Totally.

Video games? Affirmative.

Horses? No problem!

Dinosaurs? Absolutely.

Moldy bread? Indeed.

Violins? Neat idea!

Trains? All aboard!

Stink bugs? A-OK!



You really can turn almost anything you're interested in to a good science fair project!

**However... make sure you keep safety in mind!** You should not choose a project that could hurt you, other people, or animals. Dangerous chemicals or open flames will not be permitted at the science fair. Tools or kitchen appliances should only be used with adult supervision. Safety first, kids!

## STEP THREE: DECIDE WHICH TYPE OF SCIENCE FAIR PROJECT TO DO!

There are three totally different ways to participate in the science fair!

Which way is right for you? Let's find out! For each topic below, circle the idea which seems the coolest to you.

1) CHOCOLATE CHIP COOKIES		
A How much longer will it take to bake bigger cookies than smaller ones?	B How can I create a new cookie recipe that is healthier?	C Why won't a microwavew oven bake cookies like a regular oven can?
2) BASKETBALL		
A What is the best angle to shoot the ball at so that it goes into the hoop?	B What could I build so that the ball returns to me after each shot?	C Why do people sweat when they exercise hard?
3) DOGS		
A Can I get my dog to bark only when I play a certain note on my recorder?	B What can I build to keep my dog from getting on the couch?	C What are different jobs that use a dogs' super sense of smell?
4) LEGOS		
A Which type of brick will stack the tallest before falling over?	B What can I build to keep all my legos organized?	C What are legos made out of and how do they make them?

### IF YOU TENDED TO PICK "A", YOU LIKE EXPERIMENTS.

Experiments try to figure out what happens and why. Then, you figure out the steps you plan to follow to try and answer that question (scientists call that part the "experiment"). As you do your experiment, you will collect information about what happens in your experiment – this is called data. When you're done, you take a look at your data and try to say what you learned from it. The neat thing about experiments is that you're never really sure how the answers might turn out!

### IF YOU LIKED THE CHOICES UNDER "B" THE BEST, YOU LIKE INVENTIONS.

Inventions try to solve a problem. An invention might be a new gadget, or simply a new way of doing something. When people make inventions, they usually test a design, then decide what worked and didn't, then build a better new design. Some science fair inventions actually work, and others are just ideas kids have about what they WOULD do if they could. You probably can't actually build a robot that climbs mountains to rescue trapped climbers, but you could share your ideas about what that robot should be able to do!

### IF YOU LIKED THE CHOICES UNDER "C" THE BEST, YOU LIKE DISCOVERY.

Discovery Projects let you learn more about a topic you're interested in. Read books, study websites, talk to experts, go to museums, and whatever else you can think of! When you're done learning about the topic, you will design a poster and a visual aid (like a model or a display) that helps other people learn about your topic as well. Discovery projects are a great way to learn about what other scientists have found out about your topic already!



## STEP FOUR: TURN A GOOD SCIENCE FAIR PROJECT IDEA INTO A GREAT IDEA!

**BE ORIGINAL!** Volcanoes, sugar crystals, or models of the solar system have been well-explored in science fairs before. You can still do a great project on a 'classic' theme, but there's a lot of cool other choices too!

**BE SPECIFIC!** Focus on one single idea instead a lot of different things.

**BE REALISTIC!** Your project should be something that isn't too easy or too hard for you to do (with only simple assistance/advice from an adult).

**BE ORGANIZED!** **Turn in your entry form by the deadline!** Plan out your project before you start and look at the scoring rubric to make sure you've got everything!

**BE EXCITED!** Your project should be something you can't wait to get back to everyday. If your parents need to bother you to work on your science fair project, then you've picked the wrong one.



## SPECIAL NOTES ABOUT THE STUFF YOU WRITE...

### Lab journals

**NOTE: 'Discovery' do not require lab journals.**

A lab journal is a notebook to write down everything you do for your science fair project like a science diary. You can even cut things out like pictures and paste them in your journal with a glue stick. Put a date for each entry.

When someone flips through it, they should see all the time you put into your project. Judges love to see you working through problems in your journal so be sure to even include your mistakes!

### Resource Reviews

**NOTE: 'Discovery' for third grade and up do not require Resource Reviews.**

Resource Reviews give you a chance to learn some new stuff about your project from books, magazines, websites, other people... wherever you can!

When you find a project, choose a book or other resource that is related to your project. Write down a couple interesting things you learn about the topic on the paper.

BLANK RESOURCE REVIEWS CAN BE FOUND AT THE END OF THIS PACKET.

### Reports

**NOTE: ONLY 'Discovery' for third grade and up write up Reports.**

Your report should include interesting and useful stuff that is related to your project. For example, if your project is about flowers, your report might talk about the parts of a flower and why flowers are important to plants. You might get a book or two from the library, visit some websites with your parents, or find a different place to learn new stuff. Your journal is a great place to write down interesting information you learn from your resources.

Judges will want to see that you did a report, but there is no official page or word count requirement. A good guideline is to make your report about as many pages as your grade level is.

	<b>Invention / Experiment</b>	<b>Discovery</b>
<b>Kindergarten</b>	<b>NO Report required Lab Journal required</b>	<b>1 Resource Review NO Lab Journal required</b>
<b>First and Second Grades</b>	<b>1 Resource Reviews Lab Journal Required</b>	<b>2 Resource Reviews NO Lab Journal required</b>
<b>Third and Fourth Grades</b>	<b>2 Resource Reviews Lab Journal required</b>	<b>Report required NO Lab Journal required</b>
<b>Fifth through Eighth Grades</b>	<b>3 Resource Reviews Lab Journal required</b>	<b>Report required NO Lab Journal required</b>

# NORWIN SCHOOL DISTRICT SCIENCE FAIR RULES

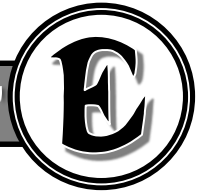
## YES!

- Your project must be no larger than 48" wide, 36" tall, and 18" deep. This includes the backboard display and any models or collections. All projects must be free standing. Students are encouraged to purchase or construct a 3-panel backboard display (see sample picture below).
- Refer to the judging form for your project category to make sure you include everything you are supposed to.
- **Leave the upper left corner of the display board open.** This is where each fair will place the project's identification tag.
- Back of project should contain "Parent Pledge" that confirms the ideas and work is the student's own, with minimal help as appropriate for the grade level. This is available at the end of this packet. Reports may be typed or hand-written, again, with expectations appropriate for the student's grade level.

## NO!

- Do not put your name, a picture of you, the name of your school on your poster or among your supplemental resources. We do not want any information that could identify you as the person who created the project.
- No LIVE ANIMALS OR INSECTS of any kind are permitted in the District Science Fair. If your project deals with living creatures, take photographs of them instead of bringing them in.
- Animals that are in your experiment should not be harmed or abused in anyway.
- No dangerous chemicals or open flames are permitted at the District Science Fair.
- No group work among students is permitted in grades K-4.
- State when you use information that is not your own. Give credit to sources that help you learn about your product like books or websites. Use quotes when writing other people's words.
- No purchased models (such as the Visible Engine or the Visible Body) will be accepted as 'Visual Aids' for a Discovery project.
- Please note that the judges will use the official rubrics when evaluating the projects. However, each project's scores will not be made public following the judging.





PROJECT: \_\_\_\_\_ ID #: \_\_\_\_\_

## EXPERIMENTAL CATEGORY

GRADE LEVEL: K 1 2 3 4 5 6 7 8

An Experiment tries to see how changing one thing affects another. The experiment is usually repeated to see how changing different things affects the results. The scientist looks at the results and tries to explain what they mean.

### A) PROBLEM (4 PTS)

STATE PROJECT GOAL

- ( \_\_\_ / 1) Clearly stated as a question.
- ( \_\_\_ / 3) Goal is appropriate in scope and difficulty for grade level.

### B) JOURNAL (4 PTS)

KEEP A DIARY OF YOUR RESEARCH STEPS

- ( \_\_\_ / 1) A notebook, tablet, 3-ring binder, etc. with no loose papers (Journal should be separate from project board)
- ( \_\_\_ / 3) Contains dated entries showing each step in process from topic selection through finishing the poster

### C) BACKGROUND RESEARCH (4 PTS)

LEARN FROM AVAILABLE INFORMATION

KINDERGARTEN – No report required

GRADES 1-8 Grade 1-2 requires 1 Resource Review. Grade 3-4 requires 2 Resource Reviews. Grade 5-8 requires 3 Resource Reviews.

- ( \_\_\_ / 4) Completed correct number of 'Resource Review' sheets (Research should be separate from project board)

### D) HYPOTHESIS (2 PTS)

MAKE A PREDICTION THAT YOU CAN TEST WITH YOUR EXPERIMENT

- ( \_\_\_ / 2) Prediction made can be effectively tested through the designed experiment

### E) PROCEDURE (7 PTS)

LIST THE STEPS YOU TOOK TO COLLECT YOUR DATA

- ( \_\_\_ / 2) Lists equipment used
- ( \_\_\_ / 5) Explains (with diagrams/photos as useful) the steps taken in an effort to answer question(s) raised in Problem (part A)

### F) VARIABLES (7 PTS)

DESCRIBE WHAT YOU WERE LOOKING TO SEE AND HOW YOU TRIED TO MAKE THAT HAPPEN

- ( \_\_\_ / 4) Identifies what was changed between tests (Independent) and what was examined for possible changes as a result (Dependent)
- ( \_\_\_ / 3) Identifies characteristics that could vary between test subjects, but were not allowed to (Constants)
- Selects a standard to compare results to (Control Group) if appropriate

### G) DATA (6 PTS)

NEATLY LIST THE DATA YOU COLLECTED

- ( \_\_\_ / 3) Collected sufficient data for analysis (recommend at least 3 sets of data)
- ( \_\_\_ / 3) Presents data neatly in tables with metric units where appropriate. Graphs are used when appropriate to display trends in data.

### H) CONCLUSIONS (8 PTS)

THINK ABOUT WHAT YOU LEARNED AND WHAT ELSE YOU WOULD LIKE TO

- ( \_\_\_ / 6) Refers specifically to Problem (part A) and answers the following questions:
  - "What did I learn about science from this project?"*
  - "What mistakes were made and what did I learn from these mistakes?"*
  - "After this project, what else would I like to learn about this topic?"*
- ( \_\_\_ / 2) **MUST note the nature and extent of any adult assistance with project**

### I) VISUAL IMPACT (5 PTS)

ENHANCE WHAT YOU ARE TRYING TO SAY WITH A GREAT DISPLAY BOARD

- ( \_\_\_ / 5) Neatness, organization, creative choices of poster design, and supplemental display items

### J) POSTER LAYOUT (3 PTS)

LAY STUFF OUT NEATLY (AND DON'T LET ANYONE KNOW WHO YOU ARE)

- ( \_\_\_ / 1) Poster is broken into separate sections that are each clearly marked with headings listed above
- ( \_\_\_ / 2) **NO personally identifying information (student name / photographs including student / etc.) should be anywhere on your poster.**

**TOTAL SCORE (OUT OF 46 FOR KINDERGARTEN, OUT OF 50 FOR GRADES 1 & UP)**



**PROJECT:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

## INVENTION CATEGORY

**GRADE LEVEL:** K 1 2 3 4 5 6 7 8

An Invention tries to solve a problem, with the creation of some sort of device or a proposed change in how things are done. The solution should go through several revisions to improve its performance. The final solution is then evaluated for how effectively it addresses the original problem.

### A) PROBLEM (4 PTS)

**STATE PROJECT GOAL**

( \_\_\_ / 1) Clearly stated as a question.

( \_\_\_ / 3) Goal is appropriate in scope and difficulty for grade level.

### B) JOURNAL (4 PTS)

**KEEP A DIARY OF YOUR RESEARCH STEPS**

( \_\_\_ / 1) A notebook, tablet, 3-ring binder, etc. with no loose papers (Journal should be separate from project board)

( \_\_\_ / 3) Contains dated entries showing each step in process from topic selection through finishing the poster

### C) BACKGROUND RESEARCH (4 PTS)

**LEARN FROM AVAILABLE INFORMATION**

**KINDERGARTEN – No report required**

**GRADES 1-8** Grade 1-2 requires 1 Resource Review. Grade 3-4 requires 2 Resource Reviews. Grade 5-8 requires 3 Resource Reviews.

( \_\_\_ / 4) Completed correct number of 'Resource Review' sheets

### D) ORIGINAL CONCEPT (2 PTS)

**SKETCH OF FIRST SOLUTION**

( \_\_\_ / 2) A sketch that shows an educated guess about how solution might look and function

### E) REVISION(S) (6 PTS)

**CHANGE(S) IN DESIGN IN RESPONSE TO TESTING OF MODELS**

( \_\_\_ / 3) Revision(s) is/are clearly listed & described (At least one revision required, though more may be included as appropriate)

( \_\_\_ / 3) Revision(s) demonstrate(s) an effort to improve invention as a result of testing

### F) MODELS (6 PTS)

**SIMPLIFIED VERSIONS OF ORIGINAL CONCEPT AND REVISIONS TO TEST OUT IDEAS**

( \_\_\_ / 3) Photos or samples of model presented

( \_\_\_ / 3) Models demonstrate an effort to test invention performance

### G) FINAL INVENTION (8 PTS)

**SOLUTION CREATED AS A RESULT OF DESIGN PROCESS**

( \_\_\_ / 3) Shows ability to successfully address Problem (from Part A)

( \_\_\_ / 5) Invention demonstrates effort, attention to detail, and safety considerations

### H) CONCLUSIONS (8 PTS)

**THINK ABOUT WHAT YOU LEARNED AND WHAT ELSE YOU WOULD LIKE TO**

( \_\_\_ / 6) Refers specifically to Problem (part A) and answers the following questions:

*"What did I learn about engineering from this project?"*

*"What mistakes were made and what did I learn from these mistakes?"*

*"After this project, what else would I like to try to create a solution for?"*

( \_\_\_ / 2) **MUST note the nature and extent of any adult assistance with project**

### I) VISUAL IMPACT (5 PTS)

**ENHANCE WHAT YOU ARE TRYING TO SAY WITH A GREAT DISPLAY BOARD**

( \_\_\_ / 5) Neatness, organization, creative choices of poster design, and supplemental display items

### J) POSTER LAYOUT (3 PTS)

**LAY STUFF OUT NEATLY (AND DON'T LET ANYONE KNOW WHO YOU ARE)**

( \_\_\_ / 1) Poster is broken into separate sections that are each clearly marked with headings listed above

( \_\_\_ / 2) **NO personally identifying information (student name / photographs including student / etc.) should be anywhere on your poster.**

**TOTAL SCORE (OUT OF 46 FOR KINDERGARTEN, OUT OF 50 FOR GRADES 1 & UP)**



PROJECT: \_\_\_\_\_ ID #: \_\_\_\_\_

## DISCOVERY CATEGORY

GRADE LEVEL: K 1 2 3 4 5 6

In the Discovery category, a student learns about a science or engineering topic through resources they locate when doing research on the topic. They prepare a report, a poster, and a visual aid (model, collection, diorama, etc.) showing what they have learned.

### A) POSTER TOPIC (4 PTS)

STATE DISCOVERY GOAL

- ( \_\_ / 1) Topic is clearly stated.
- ( \_\_ / 3) Goal is appropriate in scope and difficulty for grade level.

### B) REPORT (10 PTS)

LEARN FROM AVAILABLE INFORMATION

- KINDERGARTEN – Only ‘Resource Review’**  
 ( \_\_ / 10) ONE completed ‘Resource Review’ sheets
- GRADES 1 & 2 – Only ‘Resource Reviews’**  
 ( \_\_ / 10) TWO completed ‘Resource Review’ sheets
- GRADES 3 & up – Report on Findings**  
 ( \_\_ / 5) Information contained within report supports goal of learning more about the topic  
 ( \_\_ / 2) Written in a clear manner and proof-read for obvious spelling/grammar errors  
 ( \_\_ / 2) Neatly typed or hand-written  
 ( \_\_ / 1) Includes a bibliography showing where information came from

*‘Resource Reviews’ and Reports should be separate from the project board.*

### C) POSTER (10 PTS)

SHARE HIGHLIGHTS OF WHAT WAS LEARNED ABOUT TOPIC

- ( \_\_ / 5) Information on poster indicates an understanding of topic
- ( \_\_ / 3) Information is presented clearly and neatly
- ( \_\_ / 2) Additional interesting facts are supplied

### D) VISUAL AID (10 PTS)

ENGAGE VIEWERS WITH TOPIC IN A CREATIVE WAY

- ( \_\_ / 1) Ties in clearly to topic on poster
- ( \_\_ / 4) Enhances poster’s ability to inform readers about the topic
- ( \_\_ / 5) Demonstrates student effort and neatness

*If Visual Aid is attached to project board, it should include a heading that designates it as: ‘Visual Aid’*

### E) CONCLUSIONS (8 PTS)

THINK ABOUT WHAT YOU LEARNED AND WHAT ELSE YOU WOULD LIKE TO

- ( \_\_ / 6) Refers specifically to Topic (part A) and answers the following questions:  
 “What did I learn about science (or engineering) from this topic?”  
 “What was the thing that I learned that I found most surprising (and why)?”  
 “After this project, what else would I like to learn about this topic?”
- ( \_\_ / 2) **MUST note the nature and extent of any adult assistance with project**

### F) VISUAL IMPACT (5 PTS)

MAKE YOUR POSTER STAND OUT BY LOOKING GREAT

- ( \_\_ / 5) Neatness, organization, creative choices of poster design

### G) POSTER LAYOUT (3 PTS)

LAY STUFF OUT NEATLY (AND DON’T LET ANYONE KNOW WHO YOU ARE)

- ( \_\_ / 1) Poster is broken into separate sections that are each clearly marked with headings listed above
- ( \_\_ / 2) **NO personally identifying information (student name / photographs including student / etc.) should be anywhere on your poster.**

## TOTAL SCORE



# NORWIN SCIENCE FAIR – RESOURCE REVIEW

Number Required	0	1	2	3
	Grade K Invention Grade K Experiment Grades 3+ Discovery	Grade K Discovery Grades 1-2 Experiment Grades 1-2 Invention	Grades 1-2 Discovery Grades 3-4 Experiment Grades 3-4 Invention	Grades 5-8 Experiment Grades 5-8 Invention

Your Project's Name:	
Name of Resource:	Author of Resource:
What kind of resource is it? (Book, website, etc)	Why did you pick this resource?

**List three or four interesting things you learned about the subject of your project!**


## Parent Pledge

This project represents primarily the work of my child. While I may have been involved as dictated by safety, practicality, and/or the age of my child, I have tried to keep my child in charge of the project selection, design, and execution. Areas where I did provide assistance are clearly noted on the front of the poster.



As a parent or guardian of the participating student, I agree that it meets the intents above.

In order to maintain project confidentiality, do not sign this.  
Simply check to confirm, cut it out, and glue it onto the BACK of the project. Thank you!