35th Annual Southern Division



ELEMENTARY ART & SCIENCE FAIR 2015 - 2016

Dr. Desmond K. Blackburn



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Student/Public Equity
Mr. Robin L. Novelli
Dir. High School Programs
2700 Judge Fran Jamieson Way
Melbourne, FL 32940
(321) 631-1911, Ext. 310
Novelli.Robin@Brevardschools.org

Exceptional Education/504 Equity
Dr. Patricia Fontan
Dir. Exceptional Student Education
2700 Judge Fran Jamieson Way
Melbourne, FL 32940
(321) 631-1911 Ext. 505
Fontan.Patricia@Brevardschools.org

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Employee/Job Applicant Equity Mr. James C. Hickey IV Dir. Human Resources & Labor Rel. 2700 Judge Fran Jamieson Way Melbourne, FL 32940 (321) 631-1911 Ext. 265 Hickey.Jim@brevardschools.org

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SCIENCE FAIR OFFICIALS

Mr. Barry K. Pichard

Chairman and Principal of Sunrise Elementary

Mrs. Marilyn E. Sylvester

Co-Chairperson and Principal of Longleaf Elementary

Dr. Desmond K. Blackburn

Superintendent of Schools

Mrs. Jane Cline and Dr. Mark W. Mullins

Area Superintendents

Mrs. Cyndi Van Meter

Associate Superintendent of Curriculum and Instruction

Dr. Lynn Spadaccini, Director

Office of Elementary Programs

Mr. Ed Short, Resource Teacher

Office of Elementary Programs

Ms. Brenda Sheets

President of Harris Foundation

Ms. Coleen Bondi

Manager, Harris Corporate Relations

Science Fair Committee Members

Michelle Aloise, Indialantic
Maribeth Boyle, Ocean Breeze
Janice Frye, Lockmar
Joanne Gold, Sunrise
Susanne Goodwin, Sunrise
Holly Keyes, Ocean Breeze
Lisa McBee, South Area Staffing Specialist
Chimene Rice, Surfside
Michelle Ruth, Pt. Malabar
Paul Schryer, Quest

Schedule of Science Fair Activities

<u>2015</u>

August 26 Science and / or Art Fair Contact names due to

Sunrise Elementary.

September 8 3:30 pm –Riviera ES – media center September 10 3:30 pm –Longleaf ES – media center

Distribution of Science Fair Contact Packets

September – February Please refer to the Step by Step Science Fair

Planning packet distributed at the Contact

Meeting.

<u>2016</u>

Deadline for receiving Electronic student listing to

be sent to <u>Jan Frye - Lockmar Elementary School</u>

March 8, 9 and 10 Science Fair Activities

Melbourne Civic Auditorium

625 E. Hibiscus Blvd., Melbourne - 32901

March 8 Set up day for Science Projects

Noon - 4:00 PM

March 9 Student Interview Day

March 10 Open House – 3:00 PM – 6:30 PM

Art Awards Ceremony – 6:30 PM

Science Awards Ceremony – 7:00 PM

Art and Science Projects to be picked up by school

Representative/s at the close of the fair

SCHOOL FAIR CONTACTS

Information will be sent via e-mail regarding all aspects of the 35th Annual Science Fair.

Please contact if you have any questions during the year.

Guidelines

Southern Division - Elementary Science Fair

The following guidelines will be used in the process of screening and exhibiting projects for the Southern Division Elementary Science Fair.

- 1. Students' projects, research plans, and testing procedures must be reviewed and approved by their teacher.
 - A. Each school must have a Science Fair Committee in place that can support the classroom teacher with advice and guidance.
 - B. Students designing their own experiments for science projects will need guidance to conduct safe and ethical science. An "Elementary Science Project Research Plan and Approval Form" template is provided to assist. (pages 7 & 8)
 - C. Teachers, students and parents must work together to review and complete this form, so that everyone has an understanding of the intended project and is aware of any potentially dangerous or unethical situations before the student begins any testing.
 - D. Students must always follow approved procedures and never perform unauthorized experiments.
 - E. The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers and parents.

 www.societyforscience.org/isef/rulesandguidelines.
- 2. Students must be enrolled in a public, charter or private school.

 Home Schooled or Virtual students are to submit their entries to the public school where the child would attend according to the district attendance zone guidelines. The home school entry must contact the public school about their fair and then be judged along with all the other entries from the public school. If selected, the home school entry would attend the fair as part of the public school science team.
- 3. Each school may send <u>one</u> winner for each category (Biological, Physical or Environmental) and grade level (4-6) for a maximum total of nine (9) students.
- 4. School Contact Coordinator will send an electronic student listing following the school fair or by <u>March 1, 2016</u> to <u>Jan Frye</u>, <u>Lockmar Elementary</u>.
- 5. Projects must be individual. Group exhibits will not be admitted. Only exhibits prepared during the current school year may be entered.
- 6. Exhibits must be constructed and developed by the students. Help must be limited to advice only.
- 7. Exhibits must be confined to table space with limits of 4 feet in height, 2 feet in width, and 12 inches deep. **No display items in front of exhibit.** ONLY Research or Daily logs. Projects larger than size limitations will be disqualified at check-in area.

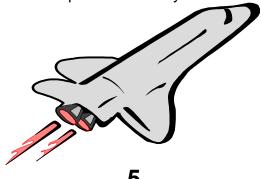
- 8. Each school will be responsible for setting up the displays. This should be done on <u>Tuesday</u>, <u>March 8</u>, <u>2016</u> between **NOON** to **4:00** PM.
- 9. The Committee reserves the right to:
 - a. refuse an exhibit that is considered unsafe.
 - b. disqualify an exhibit which may bring discredit to the Fair
 - c. refuse a project that did not treat invertebrates or vertebrates humanely
 - d. refuse a project with <u>ANY DEATHS</u> in any vertebrate group or subgroup.
 A project with these results is not permitted to be entered into the fair, even if results are unintentional/accidental.
 - e. Projects not following proper procedures may be excluded from the fair and may (or will) not be eligible for awards.
- 10. Students are **not** allowed to do projects that are clearly dangerous.
 - a. Testing involving firearms, knives or other items that could be considered, as weapons are not permitted.
 - b. Testing involving fireworks or other explosives is not allowed.
 - c. Any project involving controlled substances, prescription drugs, alcohol, and tobacco is not allowed.
 - d. The use of any potentially hazardous chemicals, devices, and activities require direct supervision by a <u>Designated Supervisor</u>.
- 11. Project displays are limited to:
 - a. Research and Daily Log usually in a notebook format in front of show board
 - b. Research data and other items should be displayed through the use of: Charts, Drawings, Graphs and Photographs
 - c. 3-D objects do not have an impact on the placing of the project. The Committee recommends use of 3-D foam letters and limited display.
- 12. Microbial experimentation (involving microscopic organisms such as bacteria, fungi, etc.) is potentially dangerous and must only be done with expert and careful supervision. Samples/organisms must NOT be collected, isolated and/or cultured from the environment as they are potentially pathogenic. This includes, but not limited to, projects involving blood, growing mold and culturing swabs from the environment. Instead all microbial samples/organisms should be obtained from a science supplier/company (ex. Carolina Biological Supply) and are limited to Biosafety Level 1 (BSL-1). The BSL-1 Checklist must be used to guide safe practices such as sealing Petri dishes, proper disposal, etc. Use of the Qualified Scientist Form and Designated Supervisor Form are required to ensure student's and others' safety.

Forms are to be part of the daily log to be viewed by the judges.

"Microbiology projects are potentially hazardous. Directors ask that schools be more accountable in this area and exclude projects where proper safety procedures and forms were not followed.

A project that is not "qualified must not be submitted to the Division Fair."

- 13. Projects involving invertebrates (e.g. worms, daphnia, fruit flies, snails, insects, etc.) must have a clear purpose that has scientific significance. Invertebrates must be treated humanely, and intentionally harming them without scientific purpose should not occur.
- 14. Projects involving non-human vertebrates (including embryos, eggs, tadpoles, and other early life cycle stages of vertebrates) are held to a higher standard than projects testing invertebrates. Vertebrates must be treated humanely, and if a project could cause pain or distress to the vertebrate the student will need to design a new question and procedure. When non-human vertebrate animals are tested and their environment is changed, a Qualified Scientist Form and Designated Supervisor Form are required to ensure humane treatment. Forms will be retained at the school level. A project with **ANY DEATH** in any vertebrate group or subgroup is not permitted to be entered into the Science Fair even if the deaths were unintentional or accidental.
- 15. In some cases, students may choose to use human subjects for their experiments. However, when an experiment could cause more than minimal risks to the human subject, the subjects (and their parents, when a minor) must be informed of, and consent to, the testing procedures before any experimentation begins. In these cases, use of the Qualified Scientist Form, Designated Supervisor Form and Informed Consent Form is required to ensure the safety of the human subjects. Forms will be part of the project package brought to the fair. For more details, see the online Risk Assessment Guide at www.societyforscience.org/isef/rulesandguidelines.
- 16. Student and school identifications must be removed from the project. All projects will be provided an identification label for the fair.
- 17. Student photos are <u>permitted</u> to be displayed. This is a parent and/ or school decision. <u>Photo credit must be provided</u>. E.G. "<u>Photographs taken by (name)</u>"
- 18. Students must be present on Judging Day for project interviews no exceptions (tapes, videos, etc).
- 19. The school is <u>responsible for the removal</u> of all exhibits when fair is completed. The Committee will not be responsible for any exhibits left after the Fair closes.



DEFINITION OF THE CATEGORIES

BIOLOGICAL: Projects that deal with the vital processes of <u>living</u> organisms, <u>plants</u>,

microorganisms, and animals (including humans), and how these processes are affected as a result of controlling a variable. Processes may include but not be limited to such functions as growth, maintenance, breathing rate, pulse, learning, memory, vision, etc. **Animals/insects**

must be treated humanely. (Page 4 & 5)

PHYSICAL: Projects related to the natural sciences such as physics, chemistry, as well

as earth and space sciences that deal primarily with <u>non-living</u> materials. Topics may include but not be limited to: properties of matter, physical and chemical changes, various forms of energy, forces, motion, processes that

shape the earth, weather, etc.

ENVIRONMENTAL: Projects that focus on <u>interactions with the natural surroundings</u>.

Projects may include the relationships of energy, population, pollution, resource allocation and depletion, conservation, transportation, and technology to the total environment. Topics may include but not be limited to: ways that human interactions protect or improve the quality of life by wisely using, reusing, recycling, or reducing use of our natural resources; ways that technology impacts our resources; ways that human interactions negatively impact the quality of life by pollution, etc.

- The school and student determine project categories.
- Projects that may qualify in more than one category must be entered in the category of major emphasis.

PROJECT SECURITY FOR THE FAIR

In order to prevent loss to the student concerning his/her exhibit, the following rules should be followed.

- 1. The Committee will make every effort to safeguard all projects, but the responsibility for the security of the entry rests with the individual contestant.
- 2. On Judging Day only Science Fair Officials, judges and student participants will be permitted in the judging area. Special accommodations will be made for special needs students and others through the Chairman or Co-Chair of the Science Fair.
- 3. Open House March 10, 2016 is from 3:00 –6:30. Refer to item # 1 for clarification.

Proper procedure for using the approval process is for the teacher to send home a copy of this form with each student to complete with parent guidance then carefully review the form before approving the project.

Elementary Science Project Research Plan and Approval Form

Elementary students designing their own experiments for science projects will need guidance to conduct safe and ethical science. **Teachers**, **students** and **parents** MUST work together to review and complete this form, so that everyone has a complete understanding of the intended project and is aware of any potentially dangerous or unethical situations *before* the student begins any testing. Each school MUST have a Science Fair Committee in place. Questions concerning this form and other science project concerns MUST be referred to the school Science Fair Committee.

Name of Student	Project Title
nume of otaucht	

Guidelines for practicing safe and responsible science for students, parents and teachers

- Students are **not** allowed to do projects that are clearly dangerous. Testing involving firearms, knives and other items that could be considered weapons in a school setting is not permitted. Testing involving fireworks or other explosives is **NOT** allowed. Testing involving controlled substances, prescription drugs, alcohol, and tobacco is **NOT** allowed. The use of any potentially hazardous chemicals, devices, and activities require direct supervision by a Designated Supervisor.
- Microbial experimentation (involving microscopic organisms such as bacteria, fungi, etc.) done by elementary students is potentially dangerous and MUST only be done with expert and careful supervision. Samples/organisms MUST NOT be collected, isolated and/or cultured from the environment as they are potentially pathogenic. This includes, but is not limited to, projects involving blood, animal waste, soil, pond water, growing mold and culturing swabs from the environment. Instead, all microbial samples/organisms MUST be obtained from a science supplier/company and are limited to Biosafety Level 1 (BSL-1). BSL-1 Checklist MUST be used to guide safe practices such as sealing Petri dishes, proper disposal, etc.
- Projects involving invertebrates (e.g. worms, daphnia, fruit flies, snails, insects, etc.) MUST have a clear purpose that has scientific significance. Invertebrates MUST be treated humanely and intentionally harming those without a scientific purpose MUST NOT occur.
- Projects involving non-human vertebrates (including embryos, eggs, tadpoles, and other early life cycle stages of vertebrates) are held to a higher standard than projects testing invertebrates. Vertebrates MUST be treated humanely, and if a project could cause pain or distress to the vertebrate the student will need to design a new question and procedure. A project with ANY DEATHS in any vertebrate group or subgroup is NOT PERMITTED to be entered into the Science Fair even if the deaths were unintentional or accidental.
- In some cases, students may choose to use human subjects for their experiments. However, when an experiment could cause more than minimal risks to the human subject, the subjects (and their parents, when a minor) **MUST** be informed of, and consent to, the testing procedures before any experimentation begins. Informed Consent Forms **MUST** be used.
- Students MUST always follow approved procedures and never perform unauthorized experiments.

Note: These guidelines are adapted from the Brevard County Secondary Science Research Guide and the Intel International Science and Engineering Fair Guidelines.

Research Plan		
What question will you be testing?		
Describe your plan and procedure(s) to test this question. Be sure to include enough detail to ensure that safe and responsible guidelines are being followed.		

Does your project involve: Human Subjects where there is more than minimal risk involved? **Microbial Experimentation?** Non-Human Vertebrates whose Check: No ☐ Yes ☐ Check: No ☐ Yes ☐ environment is being changed? If yes, before any testing begins you If yes, you must obtain teacher Check: No Yes must obtain teacher approval and approval and complete a If yes, you must obtain teacher complete a Qualified Scientist Form, a Qualified Scientist Form and a Designated Supervisor Form and approval and complete a Designated Supervisor Form Informed Consent Forms when more Qualified Scientist Form and a than minimal risks are involved. Visit before any testing begins. Designated Supervisor Form BSL-1 Checklist must be used. www.societyforscience.org/isef/rulesandqui before any testing begins. delines NOTE: A qualified scientist is a medical doctor, veterinarian or individual with relevant science credentials. A science teacher, without these specific credentials, cannot be a "qualified scientist". All forms can be found in the Science Fair Handbook (see school Science Fair Contact) and on the BPS Elementary Programs Science Website. http://elementarypgms.brevardschools.org/science_fairs.htm Does your project involve invertebrates (e.g. worms, daphnia, fruit flies, snails, insects, etc.)? Check: No □ Yes □ If yes, describe the purpose and scientific significance of your project: Circle the category of this project: Biological Physical Environmental Detailed descriptions of each category are in the Science Fair Handbook and on http://elementarypgms.brevardschools.org/science_fairs.htm Teacher and/or Parent notes or concerns to be addressed: I have read the guidelines and agree to follow the procedures of this Research Plan and Approval Form. Student signature _____ Date _____ Parent signature _____ Date ____ Teacher Approval: I do not approve this project, as currently planned. Notes and/or Suggestions: _____

**It is recommended that teachers make a copy of this signed form for their own records and send the original home with the student. If a Qualified Scientist will be used the student must provide him/her with a copy of the Research Plan and Approval Form.

I will encourage the student to adhere to the guidelines and procedures of this Research Plan and Approval Form.

The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers, and parents. Visit http://www.societyforscience.org/isef/rulesandguidelines

Brevard Public Schools - Elementary Science

☐ I approve this project.

Teacher signature _____

Date ____

JUDGING CRITERIA

- 1. Quality:
 - How well the student understands the project and the area (s)he has chosen.
- 2. A project which involves laboratory or field work (not just research or gadgeteering).
- 3. An elementary child's work not that of a middle or high school student. All work has worth / value.
- 4. Project as compared to others in the same category and grade level.

CRITERIA

I Creative Ability......20 points

Does the project show creative ability and originality in:

- The question asked
- The approach to solving the problem
- The analysis of data
- The use of equipment
- The construction/design of the experiment

Obviously the elementary child would not incorporate all the above in his/her project, nor in depth. Try to ascertain the kind of assistance received by the child. Don't penalize for taking help from others but try to determine what the student has contributed. EXAMPLE: Did (s)he get the idea from a book or did (s)he develop an idea as a result of reading. The child's idea is considered more creative.

Collections are not creative unless they are used to support an investigation and help to answer a question in an original way.

Engineering should not be a lot of gadgets but a genuine contribution – the most efficient way to solve a problem, etc...

II	Scientific Thought) points
III	 Thoroughness	points
IV	 Skill Does the student have all skills required to do the work? Where was the work done? Home? School? What assistance was given? Was the project carried out under supervision or was it done comp by the student? 	
V	Clarity	•
VI	 Knowledge Gained	roject? ct?

**Important: All Judge's information regarding decisions, notes, point awards is strictly confidential.

Please advise students that the Elementary Judging process does *not* include feedback from the Judges. All judging decisions are final.

JUDGING SHEET

Entry	/ Number		
	JUDGING CRITERIA	POINTS	SCORE OF PROJECT
I.	CREATIVE ABILITY	1- 20	
II.	SCIENTIFIC THOUGHT	1- 30	
III.	THOROUGHNESS	1- 10	
IV.	SKILL	1 – 10	
V.	CLARITY	1 – 10	
VI.	KNOWLEDGE GAINED	1 – 20	
		TOTAL POINTS	
This	section completed after judging	g and selecting the v	winning entry numbers.
Namo	e*		
Scho	ool*		

*Information obtained from participant program or project card attached to back of project.

Scl	ho	ol	Na	m	e -
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SCIENCE FAIR PROJECT ENTRY SHEET Biological (green) (3) Environmental (blue) (3)

Physical (yellow) (3)

Name _____ Grade _____ School _____ Title of Project _____ Permission to Photo Yes No All work on this project, including research, experiments, design and building of this exhibit, is truly the work of this student. • Proper supervision was used to ensure the safety of the student. Microbiology projects submitted to the Area Fair must have the proper forms as part of their Science Fair Project to show documentation. Signature of Parent or Guardian Teacher's Signature Student's Signature

SCIENCE FAIR PROJECT ENTRY SHEET:

- 1. Make "FULL PAGE" copies on corresponding colors (blue, green, yellow / or highlight pages) for your 3 winners in each category.
- 2. Make sure names are spelled correctly and are legible to read
- 3. Three (3) hole punch your Entry Sheets.
- 4. Bring completed Entry Sheets to Project Check in on Tuesday, March 8, 2016.

Southern Division Elementary Science Fair Student Project Checklist

- 1. Complete this form and bring to the sign in station on project set-up day.
- 2. All projects must have all parts to be considered for an award.

School Name:			
Project #			
Grade 4	Daily Log	One page summary	
Project #			
Grade 4	Daily Log	One page summary	
Project #			
Grade 4	Daily Log	One page summary	
Project #			
Grade 5	Daily Log	One page summary	Bibliography
Project #			
Grade 5	Daily Log	One page summary	Bibliography
Project #			
Grade 5	Daily Log	One page summary	Bibliography
Project #			
Grade 6	Daily Log	One page summary	Bibliography
Project #			
Grade 6	Daily Log	One page summary	Bibliography
	, 8	F6	y 0 r
Project #			
Grade 6	Daily Log	One page summary	Bibliography

All projects have been checked and all items are accounted for by School Science Fair Contact: (Please sign)

AWARDS

SCIENCE FAIR

Medals and ribbons will be awarded as follows:

FOURTH through SIXTH Grade

Biological Science	Physical Science	Environmental Science
1 First Place	1 First Place	1 First Place
1 Second Place	1 Second Place	1 Second Place
1 Third Place	1 Third Place	1 Third Place
1 Fourth Place	1 Fourth Place	1 Fourth Place
1 Fifth Place	1 Fifth Place	1 Fifth Place

3 Divisions will receive awards

Atlantis Division Schools = 45
Challenger Division Schools = 45
Endeavour Division Schools - 45

Total number of Awards - 135

All students entering the Science Fair will receive a Certificate of Participation

HARRIS BEST OF SHOW will be awarded to three students per division.

Additional awards may be given to individual students, schools and/or general fair support from Community Partnerships or Business sponsors –

Andretti Thrill Park, Back Country Fly Fishing Association, Eastern Florida State College Planetarium and Observatory, Brevard Schools Foundation, Brevard Zoo, FUN-SPOT, Cinema World, Community Credit Union, Dean Stewart Photography, Florida Association of Science Teachers (FAST), the Dinosaur Store, The Exploration Tower, Grimaldi Candy and Gifts, Kennedy Space Center, Sonny's Real Pit Bar-B-Q, Shells of Melbourne, Orlando Science Center, Outback Steakhouse (Viera), Wonder Works and 4 C's Nursery. – (Sponsors of last year's fair)

TIPS FOR EXHIBITORS

USE THE SCIENTIFIC INQUIRY PROCESS TO SOLVE YOUR PROBLEM Steps are:

- 1. Problem state in question form
- 2. Hypothesis predict results before experimentation
- 3. Materials items used
- 4. Procedure steps followed to test predictions
- 5. Results what happens during the experiment (measurements)
- 6. Conclusion compare results with hypothesis

Grade Level Requirements for Exhibits

4th graders Project, Daily Log, and a one page

summary

5th & 6th graders Project, Daily Log, one page summary,

research and a bibliography

EXHIBIT DIMENSIONS & Project Display

Exhibits must be confined to table space with limits of <u>4 feet</u> in height, <u>2 feet</u> in width, and 12 inches deep.

Exhibits must be self- supporting.

NO display items in front of exhibit. Research and Daily log notebook/s can be displayed. Students can bring display on judging day and take display with them when leaving judging session

Board display items -refer to page 4, Item 11

Projects larger than size limitations will be disqualified at check-in area.

*** = Project label should be placed in the middle panel of show board

Daily Log and 1 Page Summary – Grades 4-6 Bibliography – Grades 5 & 6

Suggested items to be mounted on show board

Hypothesis	Problem ***	Results
Materials	Graphs Data	Conclusion
Procedure	Summary	

^{*}Project – refers to the backboard and any materials that are displayed.

^{*}Daily Log – refers to a notebook detailing the student's daily work and data.

^{*}Summary – one page briefly explaining the most important parts of the project.

^{*}Bibliography – a listing of all resources used to obtain research information.

^{*}Internet items must be credited. (Articles, graphs, charts, photos, etc.)

HOW TO DO A SCIENCE PROJECT

Step-by-Step <u>Suggestions and Help</u> for

Elementary Students, Teachers, and Parents

Brevard Public Schools

1. Get an Idea for Your Project

Find an area that interests you. You might want to look at a list of science fair categories to help decide. Talk over ideas with your family, teacher, or friends. Use TV commercials, magazines, newspapers, hobbies, sports, or books to get more ideas. Think about problems around the house that you would like to solve. You can even test household items.

2. Start a Daily Log

A detailed Daily Log with accurate records allows a scientist to describe their investigation so others can repeat it and try to replicate the results. Use a separate permanent bound or spiral notebook as your Daily Log and divide it into two sections: "Daily Work" and "Data."

- In the *Daily Work* section write down all the things you do or think about concerning your project each day like a diary. Write a <u>date for each entry</u> to show the day to day record of your progress while doing your project. Give details. Include your procedure, research, diagrams, changes to the experiment, bibliography, etc.
- In the *Data* section make charts <u>before</u> you start your testing. Record all measurements, readings, etc. in these charts <u>in ink as you measure them</u> during your testing. If you make a mistake draw a line through it and rewrite it. Do not erase or "white out." Data should not be recorded by typing. Record any and all other observations you make while testing also. A good scientist keeps careful, detailed records of findings and test results. Sometimes it's the unexpected observation that leads to a new discovery.

3. Do a Search for Background Information

Every scientist spends time getting background information. Use the library; write or call experts; write to companies and organizations; use the Internet* on your computer. Start keeping a bibliography with complete information on every source you used or tried to get. Good research will help you become an expert on your topic. As an expert, you will be able to make better hypotheses, plan better testing, and draw better conclusions. You'll also impress others with your knowledge when you share the results of your project with them.

4. State the Problem in a Question Form

This part (often used as a title) asks what you are trying to find or show in your investigation. Make sure your question or problem is one that can be **solved by testing**. It must involve more than a demonstration survey, or a collection. Don't confuse the use of "affect" (a verb) with "effect" (a noun).

5. State Your Hypothesis

The hypothesis is <u>an educated guess or a prediction</u> of what you think will happen during your experimentation. Use background information to help you prepare this prediction and to explain it. Be sure to write your hypothesis <u>before</u> you start your experiment. The results of the test you do later do not have to support the hypothesis in order for the experiment to be a success.

6. Design the Experiment

Determine the **procedure that you will follow to test your hypothesis** and record it in your Daily Log. The procedure should explain the steps to be followed in order to find the answer to your question or problem. Think about necessary safety precautions that will be taken. Make a complete list in your Daily Log of all the materials you will need.

- Identify the conditions (also called **Controls**) that will be kept the same during the experiment. These will help you run a fair, scientific test that will give you valid results.
- Identify the one factor you will change (on purpose) to get a result. This is called the **Independent variable** (Also called Experimental or Manipulated variable).
- Identify how your results will be measured. This is called the **Dependent variable** (also called Responding variable). It's important to have results that can actually be measured. Use measuring tools with metric units whenever possible.
- Most experiments have a **Control Group**. This is the group of subjects that is treated in the "normal" way so you can compare them to the Experimental Group (the group of subjects that have the one factor changed.)

A good procedure is very detailed – like a good recipe. This makes it easy for other scientists to duplicate your experiment so they can verify your results.

7. Conduct the Experiment

Follow your procedure carefully to ensure fair, scientific testing. While testing, <u>record all data, in ink</u>, directly into your Daily Log. Don't write measurements on a piece of paper and then copy them into your log – this can lead to errors. Be accurate and exact as you observe, measure, describe, count, or photograph. <u>Work safely.</u> If necessary, make changes in your procedure and document them in your Daily Log.

8. Repeat the Procedure

The results will be more convincing and valid if you <u>repeat the experiment as many times as possible</u>. For example, an experiment that uses ten plants will give more valid results than one that tested only one or two plants. Testing and measuring the distance a car rolled down a ramp twenty times would be more valid than testing it only three times. Understand that an experiment must be repeated many times and yield consistent results before the results can be accepted.

9. Analyze the Data (Results)

Look at the measurements you recorded in your Daily Log closely. Think about the data and decide what the results mean. Try to find explanations for your observations. If possible, examine your results mathematically using percentages, mean, median, range, and modes. Be sure to know the meanings of these words if you use them. Construct graphs or tables that will go on your backboard to show the results more clearly. Charts and graphs can help us understand patterns of change. The data will help you decide whether your hypothesis is supported or should be rejected. Identify data that is contradictory or unusual and try to explain it in your conclusions.

10. Make Conclusions

Conclusions are statements telling what you found out or learned during your investigation. This is a very important part of your project since you probably learned a lot. They are based on the results of your experiment and your hypothesis. Explain how the data you collected supports your hypothesis. If the data doesn't support your hypothesis, explain why you reject your hypothesis. Explain what further testing might be done to better answer your original question. Through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas. Tell how people might apply your findings to everyday life. Can you explain any unusual findings from your testing?

11. Communicate Your Results in a Summary or Abstract

Scientists share their findings with other scientists. Write a **short, one-page, five-paragraph** summary (sometimes called an Abstract) that explains the most important parts of your project. An easy format to use is to **write one paragraph that summarizes each** of the following:

Problem or question. State it and explain why you chose it.

Hypothesis. Tell your prediction and explain why you thought it would happen.

Testing. Give a general overview of your procedure telling how you used fair and testing. Tell about your variables, how you had repeated trials or multiple subjects, testing time, and if you had a control group.

Results. Summarize your data by telling your final measurements, totals, or averages. Share a few of the most important observations you made. Compare your control group to your experimental group – did one do better than the other?

Conclusions. State whether your hypothesis was supported by the data you collected or not. Tell the most important thing you learned. If the project was to be repeated what changes would you make and why?

Practice an oral presentation also. **Be an expert** on all parts of your project so you'll be prepared to answer an interviewer's or a classmate's questions.

12. Construct a Display that Explains Your Project

Here are some suggested parts you will want to include in your display. These will help you to organize your presentation and to communicate information about your project to others:

PROBLEM or QUESTION - Statement of problem in question form.

HYPOTHESIS - Your prediction of what will happen and your reasoning.

MATERIALS -A complete list of materials and equipment you used.

PROCEDURE -Step-by-step explanation of how you tested.

DATA or RESULTS - Shows the information you collected by testing. Includes **graphs**, tables, charts, diagrams, or photographs.

CONCLUSION - Statements relating your data to your hypotheses to tell what you learned by your testing.

Display your Daily Log, Summary or Abstract, and Bibliography on the table in front of your backboard.

13. Be ready to answer question that judges often ask.

Below are sample questions that judges often ask students during judging interviews. It is a good idea to practice answering the following questions before meeting the judges:

Can you explain or describe your project?

What procedures did you follow that made sure it was a fair and scientific test?

Where, or how, did you get the idea for your project?

What kind of help did you receive while working on your project?

What are the most important things you have learned by doing your project?

If you had more time, what things would you do to change or improve your project?

How much time did you spend working on your project?

How can you apply what you have learned to "real life" situations?

Enter your project in the school science fair. Be sure to follow the rules. Set up your backboard, Daily Log, Summary or Abstract, and Bibliography at the fair. Have fun showing others what you have learned!

*Use Internet sites for more information about science projects - go to: **Brevard District Website....**

Departments – Elementary Programs

Curriculum - Science - Science Fair



QUALIFIED SCIENTIST FORM

To ensure that safe and ethical science is conducted, this form is required for research involving microbial experimentation. It is also required when non-human vertebrate animals are tested and their environment is changed, and when human subjects are tested and there is more than minimal risk involved for the subjects.

A Qualified Scientist is a medical doctor, veterinarian or individual with relevant science credentials. A science teacher, without these specific credentials, cannot be a "qualified scientist". This form must be signed prior to the start of the student's experimentation. This form MUST be part of the student's project documentation available at the Fair.

Stu	ident's Name				
Titl	e of Project				
Sci Ad Deg Pos Ad Pho	entist Name vanced Degree gree Specialty sition dress one dents must provide a		-	and Approval Form to the Qu m unauthorized experiments	
1.	Will microbial sar	mples/organisms be	used?	Yes	No
	Microbial experimentation (involving microscopic organisms such as bacteria, fungi, etc.) done by elementary students is potentially dangerous and should only be done with expert and careful supervision. Samples/organisms should not be collected, isolated and/or cultured from the environment as they are potentially pathogenic. This includes, but is not limited to, projects involving blood, growing mold and culturing swabs from the environment. Instead, all microbial samples/organisms should be obtained from a science supplier/company and are limited to Biosafety Level 1 (BSL-1). The BSL-1 Checklist must be used to guide safe practices such as sealing Petri dishes, proper disposal, etc.				
2.	Will non-human v	vertebrates be used?	?	Yes	No
	Projects involving non-human vertebrates (including embryos, eggs, tadpoles, and other early life cycle stages of vertebrates) are held to a higher standard than projects testing invertebrates. Vertebrates must be treated humanely, and if a project could cause pain or distress to the vertebrate, the student will need to design a new procedure. This form is required when changes are made to an organism's environment. A project with ANY DEATHS in any vertebrate group or subgroup is NOT PERMITTED to be entered into the Science Fair even if the deaths were unintentional or accidental.				e treated humanely, new procedure. This IY DEATHS in any
3.	Will human subje	ects be used?		Yes	No
				an subject, the subjects (and the sefore any experimentation be	
Des sup Pla	signated Supervisor is pervision during the res	not trained in the neces search. I have a working	sary procedures, I will knowledge of the tech	o the start of experimentation ensure his/her training. I will aniques to be used by the stud udent is not conducting experi	provide advice and lent in the Research
Qua	lified Scientist's Printed Na	ame		Signature of School Person App	proving
Sign	nature				
_		ence and Engineering Fair	r (Intel ISEF) website pr	rovides additional resources and	d quidelines that can

The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers, and parents. Visit http://www.societyforscience.org/isef/rulesandguidelines
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DESIGNATED SUPERVISORS FORM

To ensure that safe and ethical science is conducted, this form is required when a Qualified Scientist has been identified but may not be available to supervise experimentation. A "Designated Supervisor" is someone who agrees to oversee the experiment in the event the Qualified Scientist is not available to supervise. The Designated Supervisor must be trained by the Qualified Scientist to ensure the safety of the student and others. All animals must be treated in a humane manner. A project with ANY DEATHS in any vertebrate group or subgroup is NOT PERMITTED to be entered into the Science Fair even if the deaths are unintentional/accidental.

This form MUST be part of the student's project documentation available at the Fair.

Student's Name	
Title of Project	
To be completed by the Designated Supervisor: Qualified Scientist Name Advanced Degree	
Degree Specialty	
Position	
Address Phone	
	ing the student. Include all hazardous substances and devices e employed: (Use back or attachments if necessary).
I certify that I have been trained in the tech experimentation and that I will provide direct support that I will provide direct support to the support of t	nniques to be used by this student prior to the start of pervision.
Designated Supervisor's Printed Name	Signature of School Person Approving
Signature	Date of Approval

The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers, and parents. Visit http://www.societyforscience.org/isef/rulesandguidelines
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INFORMED CONSENT FORM

To ensure that safe and ethical science is conducted, this form is required when an experiment could cause more than minimal risks to the human subject. The subjects (and their parents, when a minor) must be informed of, and consent to, the testing procedures before any experimentation begins. Use a separate form for each test subject. This form MUST be part of the student's project documentation available at the Fair. For more details, see the online Risk Assessment Guide at www.societyforscience.org/isef/rulesandguidelines

Student Researcher's Name Grade School Title of Project To be completed by the Student Researcher: 1) What are the research procedures in which the subject will be involved? 2) What are the possible discomforts that may reasonably be expected by participating in this research? 3) What procedures will be used to minimize risks? **Adult Sponsor's Printed Name** Signature Phone **Qualified Scientist's Printed Name Signature Date Signed** Title Institution **Phone** To be completed by human subject prior to experimentation: ☐ I have read and understand the conditions stated above, and I consent to participate in this research procedure. I realize I am free to withdraw my consent and to withdraw from this activity at any time. ☐ I consent to the use of visual images (e.g. photographs, video) involving my participation in this research project (optional). Participant's Printed Name Signature **Date Signed** If participant is under 18 years old, a parent/guardian signature is required. If the subject of this experiment or parent/guardian has any questions about this experiment, the Adult Sponsor should be contacted. I have received and reviewed a copy of any test, survey or questionnaire used in the research. ☐ Yes □ No Parent's/Guardian's Printed Name Signature **Date Signed**

The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers, and parents. Visit http://www.societyforscience.org/isef/rulesandguidelines

Human Subject Verification of Informed Consent Form

This *Human Subject Verification of Informed Consent Form* is required when student research involves human subjects and the research could cause more than minimal risks to the human subjects. This form must be attached to a sample copy of the *Informed Consent Form* (with no names on it) used by the student.

- A <u>copy</u> of these two forms MUST be part of the student's project documentation available at the Science Fair.
- The <u>originals</u>, of this form and the completed Informed Consent Forms, are to be kept by the sponsor (teacher) and secured at the student's school for a period of no less than 3 years.

Name of adult sponsor (teacher):		
Name of student researcher:		_
Student Researcher's School:		_
Number of consent/assent human subject forms collected:		
Date range of consent/assent human subject forms collected:		
to		
I, as the adult sponsor, verify that		has collected
appropriately signed and dated informed consent for 2015-2016 school year.	rms for the research p	roject for the
Adult Sponsor Signature	Date	
Student Researcher Signature	Date	

Elementary Verification of collection of consent/assent, Brevard/SSEF 2015

BSL-1 Checklist – for Pathogenic Hazardous Biological Agents

ident Name	e: School:				
Pathogenio	c Hazardous Biological Agents BSL-1 (Biosafety Level 1): Agents not known to consistently cause disease in healthy adults, and of minimal potential haza to lab workers and the environment.				
Aseptic Te	echnique Practice: Specific training in procedures being performed.				
2.	Supervision by a qualified teacher.				
3.	ited access when experimentation is taking place. (may not be done at home)				
4.	After plates are cultured and sealed with masking tape or Petri-Seal along the outside edge of the Petri dish, they are not to be reopened.				
5.	Hand washing before and after handling cultures and before leaving lab.				
6.	Eating, drinking, applying makeup or contacts is prohibited in the lab.				
7.	Work surfaces can be decontaminated after spills and at end of day with a 70% isopropyl alcohol				
8.	Approved disposal policy. (ISEF rules p. 13: www.societyforscience.org/isef)				
Safety Equ 1.	uipment Requirements: Work can be performed on an "open bench" (laboratory area) or in a fume hood.				
2.	Lab coats or aprons are to be worn.				
3.	Appropriate gloves will be worn.				
4.	Protective eyewear should be worn.				
5.	Eyewash must be available.				
6.	Bench tops impervious to spills and resistant to moderate heat, solvents, acids, alkalis, or chemicals used to decontaminate surfaces.				
7.	Designed to be easily cleaned. Carpets and rugs are not appropriate.				
8.	Windows securable and fitted with screens.				
	Student Signature Date				
	Teacher Signature Date				

The Intel International Science and Engineering Fair (Intel ISEF) website provides additional resources and guidelines that can be a valuable resource for students, teachers, and parents. Visit http://www.societyforscience.org/isef/rulesandguidelines

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ART FAIR SECTION

ART FAIR OFFICIALS

Co Chairpersons

Ms. Sherri Snow
Art Teacher, Sunrise Elementary School
Mrs. Kami Lambert
Art Teacher Melbourne School, West for Science

Dr. Desmond Blackburn

Superintendent of Schools

Mrs. Jane Cline and Dr. Mark W. Mullins

Area Superintendents

Mrs. Cyndi Van Meter

Associate Superintendent of Curriculum and Instruction

Dr. Lynn Spadaccini, Director

Office of Elementary Programs

Ms. Bridget Geiger, Resource Teacher

Office of Middle School Programs

Ms. Brenda Sheets

President of Harris Foundation

Ms. Coleen Bondi

Manager, Harris Corporate Relations

Art Fair Committee Members

Nadine Antaillia, Palm Bay Academy Charter Enrique Cortes, Palm Bay Elementary Su Wetherington, Dr. W. J. Creel Elementary

Art Fair Schedule

<u> 2015</u>

August 26 Notice of Intent to Participate – send to Sunrise Elementary

Principals send in Intent to participate to Mr. Pichard.

February 19 Names of Participating Students Due - MUST BE TYPED

Use Format below & submit to Kami Lambert (email) at

Lambert.Kamela@brevardschools.org

List: School

Art Teacher

First / Last Name of each student

(Missing the deadline means your students' names will NOT be

in the Art Fair program.)

<u>2016</u>

March 8 Deliver Art Fair entries* and completed Inventory Form

to Melbourne Auditorium- 7:00am-4:00pm

*include 2 typed labels & artist's statements (refer to Guidelines pgs. 25-26) Teachers should ask the science contact or a volunteer to deliver entries if this is an inconvenient time.

March 9 Exhibit Set Up and Judging begins at 8:00am

Schools will be notified by email or phone about art fair winners

Schools will then notify student winners.

March 10 Open House 3:00pm - 6:30pm Melbourne Auditorium

Art Awards Ceremony 6:30pm

(Only 1st, 2nd, and 3rd place, Best of Show, and Recycle Art Award winners should report to the left of the stage by 6:00pm to line up for the presentation. Merit Award winners are not part of the ceremony. Please, recognize Merit winners at school.)

Exhibit Take Down 7:30pm (approx.)

ALL Art Teachers and/or contacts are needed to help take down entire exhibit before checking out. No artwork will be released until exhibit is disassembled. (refer to pg. 25)

Check-in Procedures

March 8, 2016 / Melbourne Auditorium / 7:00am - 4:00pm 1. Turn in completed *Inventory Form*. 2. Turn in artwork with two typed labels attached and duplicate labels paper clipped (refer to guidelines pg. 25) 3. Assist committee with categorizing artwork for judging and display (placing division dots and sorting by grades). Artwork That does not meet judging criteria will not be judged and Identified with a red dot. 4. Set up recycling project on designated areas. 5. Take all transporting materials (boxes, folders, etc.) away. (Do not leave at Auditorium site) **Check-out Procedures** March 9 / 2016 / Melbourne Auditorium / 7:30 pm approx. 1. Committee member(s) will announce when it is time to begin disassembly exhibit AFTER Science Fair Awards Ceremony is completed. 2. Challenger Division art teachers "take down" artwork and display boards. 3. Atlantis and Endeavour Division art teachers "sort" all artwork by schools. (place at appropriate school signs provided). __4. Once exhibit is down, collect, count and inventory individual (So you don't take another school's artwork) school artwork. 5. Go to "Check Out" table – Sign Out and get brown envelope with certificates and programs. _6. Take down recycle project / display.

REMINDERS: Following procedures ensures; orderly conclusion to the Art Fair, helps avoid missing artwork and shows respect for artwork and all involved. Thank you for your cooperation!

Art Fair Guidelines

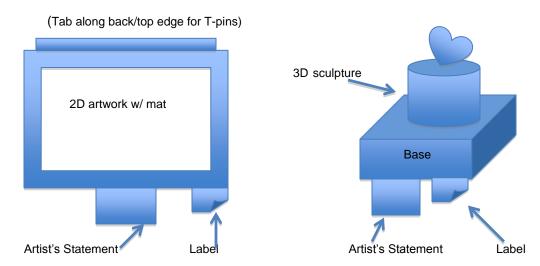
Entries & Categories

- 1. Each Visual Art teacher may submit **2 entries per grade level** (kindergarten through 6th only) in either **2-Dimensional** (drawing, painting, collage, print making, or mixed media), or **3-Dimensional** (pottery, sculpture, assemblage, fibers, papier maché or mixed media) categories. Final decision on 2-D or 3-D category is up to the judges. **NEW:** Photographs and computergenerated artwork may be entered and are eligible for a MERIT AWARD.
- 2. Artwork must be made at school during the current school year, and created by students who are currently enrolled in and attending the same school indicated on their artwork entry form/labels. One piece of artwork per student.
- 3. Each school may also submit **one entry**, made collaboratively by 10 or more students, in the **Recycle Art Category**. (Refer to pg. 27)
- 4. **2-D artwork is to be properly matted.** (Top frame of mat board mounted on stiff backing). Do not use construction paper for mat or backing. Make sure the artwork and matting are <u>strongly adhered</u> together.
- 5. **3-D** artwork must be secure and free of any broken, missing parts, or loose pieces. Due to the variety of materials, shapes, and sizes of 3-D pieces, consider the weight and stability of the work to determine if a base or special support is needed for display on the 4 X 8' tables provided.
- 6. Due to limited space, all **artwork (both 2-D & 3-D) shall not exceed the size of 28 inches** in any direction (including mat).

Labeling & Artist's Statements

- 7. **TYPE** all information on the Standards label provided (sent via email).
 - Print a second/duplicate label for each piece of artwork.*
 - (2-D artwork) Place 1st label at the lower right corner of the work by putting glue along the top edge and attach from the backside so it's hanging down and can be read from the front. (This allows for easy removal without ruining the expensive mat board).
 - (3-D artwork) Place labels near the base/bottom of the artwork in a way that compliments the piece.
 - *The duplicate label should be paper clipped onto the original attached label name side up for grade K-3, or name side hidden (face down) for grades 4-6.

8. **Artist's Statement:** On a 3 X 5" index card or similar size paper, **type** a statement by the made by the student artist about their artwork. (Judges prefer 1-3 sentences - no more than 5). It could answer the question, "If your artwork could talk, what would it say?" Attach the statement at the bottom center of the mat or base/bottom of the piece.



Hanging Artwork - Setting up Display

9. **T-Pins are used to hang artwork on display boards.** To avoid putting holes in matting and/or artwork, place a tab (one piece of matching or complimentary mat board/poster board extending from the top of the matting)...or use several *Velcro* dots/squares (rough side) on back of artwork for easier attachment to the display boards.

The tab should extend about 1" above matting along top edge. Attach tab with heavy-duty tape (like duct or packaging tape) or Elmer's glue. <u>DO NOT use</u> glue sticks, masking tape, or rubber cement.

Without tabs at the top of the matted 2D artwork, foam core board backing, or use of Velcro, T-pins must be put through the artwork.

- 10. 3-D artwork and Recycle Category projects will be placed on designated tables and areas on the floor. Teachers must provide any needed supports, bases, etc. All pieces must be stable and secure to avoid accidents and broken artwork.
- *Please, have ALL artwork tagged and ready for display at check-in.
 Due to time constraints, there is no on-site assembly.
 Any artwork that doesn't follow guidelines or meet criteria may be displayed, but will not be judged.
 NO EXCEPTIONS.

Recycle Art Category

- 1. In addition to individual 2-D & 3-D, each school may enter ONE Collaborative piece of "recycle art". The project should incorporate the use of recycle materials or other found object type items (e.g. styrofoam, foil, boxes, newspaper, plastic, buttons, bottle caps, wire, tubes etc.) No longer will there be there two categories. All projects will be judged under one category: recycle art.
- To encourage cooperative/collaborative "teamwork" the recycle art piece <u>must</u> <u>be made by 10 or more students</u> (of any grade, K-6).
 Less than 10 students on a team will <u>NOT</u> be judged.
- 3. The artwork can be two or three-dimensional. Maximum size to fit within 6'X8' floor space. Nothing should extend beyond the designated base floor space. A TYPED Recycle Art label must be attached.
- 4. The Recycle Art project should take minimal time and effort to put up /take down for display (no more than 20 min. at Melbourne Auditorium)
- 5. Each school's Art teacher or contact person is responsible for properly delivering, setting up, and picking up the recycle artwork at the Melbourne Auditorium during the designated times:

Delivery/set up Tues., March 8, 2016 7:00am-4:00pm Take down/pick-up Thurs. March 10,2016 7:30pm (approx.)*

* All Art Representatives must stay until all artwork is taken down, display boards are disassembled and everything is inventoried.

Recycle Project should take minimal assemblage and project should take no more than 20 minutes to assemble or take down at fair closure.

- 6. A Certificate will be presented to each winning school at the Awards Ceremony. Ribbons will be placed on the projects. Give a brief description of the project on the <u>Recycle Art Label</u>: be sure to address your environmental teaching objective, the environmental theme, and/or why you chose that particular recycled material. During judging school name will be covered
- 7. Recycle Art label will be e-mailed

Judging and Awards

- 1. Judges will consider the following criteria:
 - a. Expressive use of the Elements of Art and Principles of Design (e.g. line, color, shape, texture, space and unity)
 - b. Creativity, originality, craftsmanship and degree of difficulty
 - c. Dramatic value and artistic design
- 2. Divisions are judged separately (Atlantis, Challenger and Endeavour)

 Only 4th, 5th and 6th grades are judged for 1st, 2nd and 3rd place awards or Best of Show.
- 3. All judging information is confidential and decisions are final.
- 4. **Awards** (ribbons and medals) will be given for each **4**th, **5**th **and 6**th **grade** level student at the awards ceremony for the following:

Nine awards may be given for 2-Dimensional Art

First, second and third place for Atlantis First, second and third place for Challenger First, second and third place for Endeavour

Nine awards may be given for 3-Dimensional Art

First, second and third place for Atlantis First, second and third place for Challenger First, second and third place for Endeavour

One **Best of Show** for each Division – (Atlantis, Challenger and Endeavour)

Recycle Art Awards Ribbons will be given to winning projects.

5. 75 Merit (Honorable Mention) Awards will be given to recognize student artists in any grade. Kindergarten through third grade entries and photographs and computergenerated artwork will <u>not</u> be judged, but may receive a Merit Award.

These awards will not be presented at the Awards Ceremony.

Art teachers are encouraged to make a special presentation for Merit Award winners at their schools.

6. One <u>Cover Design Award</u> will be given to a piece of artwork selected to be used as the following year's Southern Division Elementary Art & Science Fair handbook.

"SHELLS AT THE BEACH"
(SILK DYE PAINTING) BY
EMMA AIKEN
GRADE 4 - SUNRISE ELEMENTARY
ART TEACHER - SHERI SNOW