Jordan School District Elementary STEM Fair Packet Using The Computer Design (DSFP-ED) 2019-20

CONGRATULATIONS

YOU HAVE BEEN SELECTED TO REPRESENT YOUR SCHOOL AS A 5th or 6TH GRADE STUDENT AT THE JORDAN DISTRICT ELEMENTARY STEM FAIR

Thursday, February 20th at Daybreak Elementary School 5:00 p.m. to 7:00 p.m.

4544 West Harvest Moon Drive (11710 South) South Jordan, 84009

ENCLOSED ARE YOUR INFORMATIONAL PAPERS AS A 5th or 6th GRADE SCHOOL WINNER GOING ON TO THE JORDAN DISTRICT ELEMENTARY STEM FAIR COMPETITION FOR:

A COMPUTER DESIGN STEM FAIR PROJECT.

A COMPUTER DESIGN PROJECT IS DESIGNING A CODE FOR A NEED, PROGRAMMING A COMPUTER, THEN TESTING IT TO SEE IF IT WORKS AND FULFILLS THE NEED.

IF YOU DID AN EXPERIMENT USING THE SCIENTIFIC DISCOVERY OR ENGINEERING DESIGN PROCESS, DOWNLOAD IT FROM THE ELEMENTARY SCIENCE WEBPAGE.

Table of Contents
And Filling out the 2020 CUSF Entry Form

Filling out the 2020 Central Utah STEM Fair Entry Form

All students entering the JSD Elementary STEM Fair need to have completely filled out the 2020 Central Utah STEM Fair (CUSF) Entry Form. If you need the 2020 Central Utah STEM Fair (CUSF) Entry Form, click on the link below.

- http://elemscience.jordandistrict.org/files/Elem_CUSF_Form_2020.pdf

If the above link doesn't work, you can find the 2020 Central Utah STEM Fair (CUSF) Entry Form by following the steps below:
- Go to http://www.jordandistrict.org
- On the blue bar at the top, scroll down on "Faculty and Staff" and click on "Departments".
- On this page, click on "Curriculum and Staff Development".
- On this page, find "Elementary" at the top and scroll down and click on "Science".
- On this page, click on "STEM Fairs" in the upper bar.
- On this page, click on "2019-20 JSD STEM Fair Information for Parents and Students".
- On this page in Part 3, click on "2020 Central Utah STEM Fair Elementary Entry Form

**If you have any questions about JSD Elementary STEM Fair,
Please contact Paul Nance:
Cell: 801-244-6479; E-mail: paul.nance@jordandistrict.org**

Online Preregistration as a Participant in the 2019-20 JSD ELEMENTARY STEM Fair

The first thing students need to do is preregister for the 2019-20 JSD Elementary STEM Fair found on the JSD Elementary Science Webpage!!

To preregister, click on the link below.

If there are two or more per project, <u>all need to pre-register separately</u> so I can communicate with all students and their parents.

https://docs.google.com/forms/d/e/1FAIpQLSfj_NAefti4eHrEZ5FD5ru8U-y0ZrFYJav5pcnsByhMaMFqNw/viewform

If the above link doesn't work, you can find the 2019-20 JSD Elementary STEM Fair Pre-registration site by following the steps below:

- Go to http://www.jordandistrict.org
- On the blue bar at the top, scroll down on "Faculty and Staff" and click on "Departments".
- On this page, click on "Curriculum and Staff Development".
- On this page, find "Elementary" at the top and scroll down and click on "Science".
- On this page, click on "STEM Fairs" in the upper bar.
- On this page, click on "2019-20 JSD STEM Fair Information for Parents and Students".
- On this page in Part 2, click on the "2019-20 Jordan District Elementary STEM Fair Student Pre-registration for 5th and 6th Grade School Winners".
- A pre-registration form will come up.
  - Fill in all the boxes. (All the boxes need to be filled in.)
  - Click on "submit".

When you have filled this out you are done with the preregistration. I will send you a confirmation that I received your information. I will also be sending you other JSD Elementary STEM Fair information from time to time to keep in contact with you.

Please preregister by Monday, February 17. That way you will be guaranteed that you will receive your 2019-20 Jordan District Elementary STEM Fair participation certificate by Wednesday at the in-person registration. If by chance your school STEM fair is after Friday, February 14, please preregister as soon as you can. We will get your participation certificate later.

I am having you preregister for many reasons.

- It gives me an accurate email address for each student.
- It will be through an email that all students will be told if they are winners or non-winners at the JSD Elementary STEM Fair.
- It will give me an accurate count of how many students to expect for the fair.
- When students preregister, I will write each student to give each student continual information and reminders about the Jordan District Elementary STEM Fair in-person registration and the STEM Fair information.
- Just in case there is a change in procedure I can email everyone immediately.

Daybreak Elementary School Directions

4544 West Harvest Moon Drive (11710 South) South Jordan, 84009
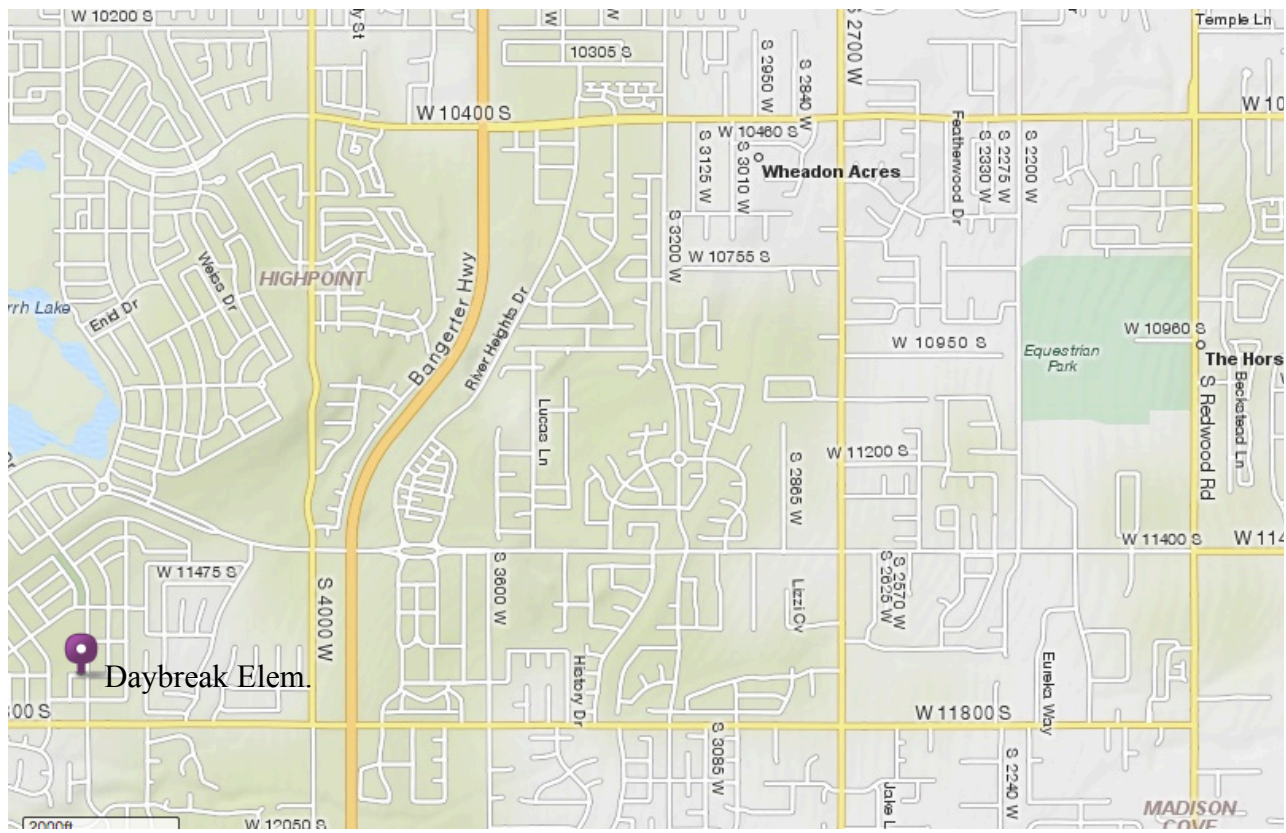
The best way to get to Daybreak Elementary is to either:
- Travel west on 11800 South that goes under Bangerter Highway
- Turn north onto Oakmond Drive (4600 West).

<div align="center">or</div>

- Turn west off of Bangerter Highway at 11400 South
- Immediately turn south onto 4000 West
- Turn west on 11800 South
- Turn north onto Oakmond Drive (4600 West).

Map to Daybreak Elementary

2019-20 JSD Elementary STEM Fair Schedule

<u>**Wednesday, February 19th**</u>

- **4:30 to 6:30 p.m. In-person registration and set up at Daybreak Elementary School**
  - Come in anytime **between 4:30 and 6:30** to set up your display board at Daybreak Elementary.
  - **Bring your 2020 CUSF Entry Form papers with you completely filled out with all signatures.** If the form is not completely filled out, it will be given back to be completed. It must be returned by your judging time on February 20th. **You will not be judged until it is completely filled out.**
  - **When you Register:**
    1. Walk into the cafeteria to fill out the "In-person Registration Form" and to pick up your participation certificate. (This tells me you actually showed up.)
    2. An escort will take you to the display hall where you are to set up your display in the category area you have chosen for your project.
    3. In your category area, you will pick a judging time when you want to be judged on February 20th. (Judging times are: 5:00 to 5:40, 5:40 to 6:20, or 6:20 to 7:00.)
    4. You will set up your display and your journal. **Someone will check your display before you leave to make sure you have followed the Jordan District/CUSF display rules.**
    5. **Make sure you don't bring things that are on the "do not bring list". (See the second page of the 2020 CUSF Entry Form.)**
    6. You will leave your display overnight. (Don't leave anything of value overnight.)
  - Parents and students are invited to view the projects during this time.

  <u>**Note:**</u> **If you cannot show up on Wednesday between the hours of 4:30 and 6:30 for the in-person registration, don't just come in on your own on Thursday to set up. There is a procedure you need to follow to set up. Call Paul Nance at 801-244-6479 to make an appointment to set up. The only time to set up is between 9:00 a.m. and 3:00 p.m. on Thursday, February 20th.**

<u>**Thursday, February 20th**</u>

- **4:30 to 5:00**
  - Judges look over the displays they are judging without the students.

- **5:00 to 7:00 p.m. (Student Interviews)**
  - There are three different interview times: 5:00 to 5:40; 5:40 to 6:20; 6:20 to 7:00. (The students will get their interview time on Wednesday, February 19th when they set up their displays. Each student will only have one interview time.

2019-20 JSD Elementary STEM Fair Schedule
(Continued)

- **The students can be in the cafeteria 30 minutes before their scheduled interview time to participate in a door prize drawing for that particular interview time period.**
- At their interview times, the students will be called out of the cafeteria to stand by their displays. A judge will interview each student for 10 to15 minutes. Students will only be judged once.
- Students can bring books to read while waiting for the judge to interview them. They need to be quiet at this time.
- **Parents are not allowed in the display area during this interview/judging period. They are to wait in the waiting area (cafeteria).**
- **After the students are judged, the students will leave to go home at this time taking their display boards but leaving their journals. Students are to take everything else home they brought with the displays.**
- There will be no announcements of the winners on Thursday night.
- Winners will be announced at the students' schools on Monday morning.
- A personal email will be sent to all participating students on Saturday morning if they won or didn't win.
- There will be an Awards Ceremony for the winners on Monday, February 24th from 6:00 p.m. to 7:00 p.m. at South Jordan Middle School. (See below on Monday, February 24th for more details.)

- **7:00-7:30 p.m.**
  - The judges will finish up their judging without the students and make the decisions as to who the winners are.

Saturday Morning, February 22nd
- Winner information will be sent to schools to be announced on Monday
- All students will be notified by email if they won or didn't win.

Monday, February 24th
- Schools will announce their winners.
- An "Awards Ceremony" will be held for the winners at South Jordan Middle School from 6:00 to 7:00 p.m. located at 10245 South 2700 West, South Jordan, 84095.
- Judging sheets and journals will be returned to the winners at this time.
- More information about the Central Utah Elementary STEM Fair at BYU will be given at the "Awards Ceremony".

JORDAN DISTRICT ELEMENTARY STEM FAIR
STUDENT INFORMATION SHEET

- The Jordan District Elementary STEM Fair judging will be held on Thursday, February 20th at Daybreak Elementary School from 5:00 to 7:00 p.m. For questions about anything, call Paul Nance at 801-244-6479 or email him at paul.nance@jordandistrict.org.

- **You need to preregister online by Monday, February 17th on the Elementary Science Webpage. If you cannot do this because your school fair is after the 14th, preregister as soon as you can. (See page 1 of this document for more information about pre-registering online.)**

- On Wednesday, February 19th you need to register in person and set up your display with your journal anytime between 4:30 p.m. and 6:30 p.m. at Daybreak Elementary in a designated place just for you.

- **When you register in person on Wednesday, February 19th, bring with you your two-page 2020 CUSF Entry form**. **Make sure both pages are filled out completely and you have all the needed signatures. (**If you don't have this entry form, it is at the end of this packet or you can download it off the Jordan District Elementary Science Webpage: See Table of Contents Page on how to download it.
  - First page:
    - Student and project information and teacher signature.
    - Special signatures are needed for projects using humans, vertebrate animals, controlled substances, and growing pathogens.
  - Second page:
    - The STEM Fair Project Research Plan—This needs to be written out!!!!
    - Rules and signatures of the students and parents.

- If you are part of a team, only one CUSF Entry Form is needed. **However, all team members need to sign the bottom of the page and a parent of each student.**

- **If all the pages are not completely filled out, they will be given back to be completed.** They must be returned by your judging time on Thursday, February 20th. You will not be judged until they are completely filled out. However, you will still be able to set up your display on Wednesday, February 19th.

- Make sure you have a journal that is complete with a **title page and table of contents. The Computer Design process should be complete in the journal.** The journal should be neat, proofread, and easy to follow. The journal is separate from your display board.

- Study the Jordan District Computer Design process judging sheet. This is how you are judged. It is found on page 9 of this packet.

JORDAN DISTRICT ELEMENTARY STEM FAIR
STUDENT INFORMATION SHEET (Continued)

- **Student interviews are on Thursday, February 20th from 5:00 p.m. to 7:00 p.m. Students will select a time for their interviews when they register in-person on Wednesday, February 19th. The students' interview times will be one of these times: 5:00 to 5:40, 5:40 to 6:20, or 6:20 to 7:00. Be on time.**

- **<u>There will be a door prize drawing 30 minutes before each interview time. Therefore, there will be three door prize drawings. However, students can only participate in one drawing—the one right before their interview time.</u>**

- **No parents are allowed in the display hall during the judging of the students.**

- Your interview is very important. Practice! (See page 8.)

- If you need something special for set up, email or call Paul Nance. (See first bullet, page 4a.)

- Read carefully the "Jordan School District's Elementary STEM Fair Rules and Guidelines". **<u>NO EXCEPTIONS!</u>** (Pages 5a, 5b, and 5c DSFP-SD)

- **<u>No items</u> can be displayed in front of the display board for safety reasons.**

- Don't display any awards you received from other competitions such as ribbons, trophies, awards, etc.

- There should be no pictures of anyone under 18 on the display board without written permission except of those who performed the experiment and their family members.

- Parents are responsible to provide for student transportation coming and going to Daybreak on Wednesday and Thursday for the Jordan District Elementary STEM Fair.

- Be sure your display board is free standing. The display board measurements cannot exceed 30 inches deep, 48 inches wide, and 108 inches tall.

- Before you are judged while waiting in the cafeteria, you can do homework or bring a book to read.

- The display hall will be open for viewing by the public on Thursday, February 20th from 9:00 to 3:00. Viewing of the projects can also be done on Wednesday, February 19th from 4:30 to 6:30.

- 125 winning displays will be chosen from these six fair categories: earth science, life science, chemical science, physical science, consumer science, engineering, and computer STEM projects. We want well-done projects from every category to be represented at the Central Utah STEM Fair (CUSF) at BYU.

JORDAN DISTRICT ELEMENTARY STEM FAIR
STUDENT INFORMATION SHEET (Continued)

- **There will be a ratio of winners chosen according to the number of students who enter each of the categories which will add up to 125 winners.**

- An awards ceremony will be held at South Jordan Middle School on Monday, February 24th from 6:00 to 7:00 p.m. in the auditorium (kiva) to be awarded a 1st place ribbon and a certificate to all winners.

- If the winning students and their parents cannot be at the awards ceremony, email Paul Nance at paul.nance@jordandistrict.org so he can send the ribbon and certificate to the school.

- The 1st place, winning students will receive their judging sheets back for feedback at awards ceremony. All the others students who were participants in the fair will get their judging sheets in about four weeks after the fair. It will be given to their teachers to give to the students.

- Directly after the judging of the students on Thursday, February 20th, the display board and other display items are to be taken home by the students, but the journal must be left in the judging display hall so the judges can look at it again, if needed, for deciding the winners. The journals will be returned to the students' respective schools the following week.

- All participating students will get a Jordan District STEM Fair participation certificate.

- The 125 Jordan District Fair first place winners will go on to the Central Utah STEM Fair (CUSF) held at BYU on Wednesday, March 25, 2020. Information about the CUSF STEM Fair will be given to the 125 winners the night of the awards ceremony.

- The CUSF Registration Form you filled out for your school STEM fair and the Jordan District Elementary STEM Fair is also the entry form for the Central Utah STEM Fair. It will automatically be sent to BYU if you are a district winner. You won't need to fill out any other hardcopy entry form. However, they will require that you register on line and write an abstract paper on line.

- For the 125 winners, the $10.00 BYU registration fee will be paid by Jordan School District.

JORDAN DISTRICT ELEMENTARY STEM FAIR
RULES AND GUIDELINES
(These rules are for liability purposes. They need to be followed. No exceptions.)

I.   **Rules for all projects:**
- Project work can only be performed during the months from April 2019 to March 2020.

- You should have filled out the "2020 Central Utah STEM Fair Entry Form" (CUSF) that was used for your school STEM fair. This entry form will also be used for the Jordan District Elementary STEM Fair. If you win at the Jordan District Elementary STEM Fair, this form will go on to the Central Utah STEM Fair at BYU. **Make sure you, one of your parents, and your teacher sign it before you bring it the Jordan District Elementary STEM Fair in-person registration on Wednesday, February 19th.**

- **If you did experiments involving humans, animals, controlled substances, potentially hazardous devices, or potentially hazardous biological agents, you will need to get special signatures** from some professional people found on the first page of the CUSF Entry Form.

- **No potentially hazardous biological agents (mold, viruses, bacteria, etc.) can be grown at home. They must be grown in a lab. NO EXCEPTIONS!! They will be disqualified.**

- **Experimentation cannot be performed on minors outside the family without parent written permission.** A parent consent form should have been signed by parents giving permission to test any children under 18. A blank form is on the JSD Elementary Science webpage.

- **Signed permission papers need to be acquired if doing experimentation on adults.** A blank form is on the JSD Elementary Science webpage.

- Photographs of minors cannot be used or displayed without parent permission except of the student(s) performing the experiment.

II. **Projects involving *Human subjects:***
- **All human research projects must be reviewed and approved by a science teacher, and one of the following: a psychologist, psychiatrist, medical doctor, physician's assistance, or a registered nurse before the student begins experimentation.**

- During the review, if it is determined by the professional signing the paper that there is more than minimal psychological or physical risk to the human subjects involved in the project, the student must receive written consent from each of the participants and written parental consent for students under 18 years old.

- Signature permission papers MUST be included with CUSF Entry Form.

- If it is determined that there are unacceptable risks involved the student must revise his or her project.

- A copy of the surveys or tests you intend to use must be attached to the Entry Form.

III. **Projects involving *Non-human Vertebrate Animals:***
- **All projects involving non-human vertebrate animals must be reviewed and approved by a science teacher and a veterinarian before the student begins experimentation.**

- Experiments involving laboratory animals (rats, mice, hamsters, gerbils, rabbits, etc.) be conducted in a student's home except for behavior studies on pets.

- Proper animal care must be provided daily, including weekends, holidays and vacations.

JORDAN DISTRICT ELEMENTARY STEM FAIR
RULES AND GUIDELINES
(Continued)

- Experimental procedures that cause unnecessary pain or discomfort are prohibited.

- Experiments designed to kill vertebrate animals are not permitted. Experiments with a death rate of 30 percent or higher are not permitted.

- Behavioral studies or supplemental nutritional studies involving pets or livestock may be done at home.

IV. **Projects Involving *Potentially Hazardous Biological Agents:*** *(fungi, bacteria, mold, viruses, parasites, human or animal fresh tissues, etc.)*

- **Research involving potentially hazardous biological agents must be reviewed and approved by a science teacher and a biomedical/biological scientist.**

- These biosafety Level 1 projects must be performed in a school or private laboratory, but are prohibited in the home environment.

- **Bacteria, mold, fungi or any other potentially hazardous biological agent CANNOT be cultured at home. If they are, they will be disqualified.**

- Standard microbiological practices must be used and all hazardous agents must be properly disposed of at the end of experimentation.

- The experiment must be supervised by a qualified scientist or a trained designated supervisor.

- For questions about this, please contact the Central Utah STEM Fair Office, admin@cusef.byu.edu or 801-422-1987.

V. **Projects Involving *Controlled Substances (Prescription Drugs, Tobacco, Alcohol, etc.)***
- **All projects involving controlled substances must be reviewed and approved by a science and a biomedical/biological scientist before the student begins experimentation.**
- Students must adhere to all federal, state and local laws when acquiring and handling controlled substances.
- Only under the direction of a qualified scientist or designated supervisor may a student use federally controlled or experimental substances for therapy or experimentation.
- Students under 21 may not handle or purchase smokeless powder or black powder for STEM Fair projects.

VI. **Hazardous Substances or Devices** *(Chemicals, Firearms, Welders, Lasers, Radioactive Substances, Radiation)*

- **All projects involving hazardous substance or devices must be reviewed and approved by a science teacher and a school administrator.**

- Students must adhere to federal and state regulations governing hazardous substances or devices.

- An adult must directly supervise the experiments.

- Students working with hazardous substances or devices must follow proper safety procedures for each chemical or device used in the research.

JORDAN DISTRICT ELEMENTARY STEM FAIR
RULES AND GUIDELINES
(Continued)

VII. **Display Safety Rules and Regulations:**
- Project display board can be no larger than 30" deep, 48" wide (side to side), and 108" tall.

- **A display board and journal are the ONLY items allowed for display. Don't bring items that were part of the project to display. They will be taken down if they are there.**

- Optional: A small electronic device may be used to display photos or videos for the judge.

- A video can be shown to the judge but is limited to 1 minute and must be approved by fair personnel.

- Central Utah STEM Fair, and the participating school districts reserve the right to remove any additional items displayed with your project.

- Do NOT bring items from your experiment -- take pictures of your experiment and include them on your board and/or in your journal.

Again: No items can be displayed in front of the display board except for the journal. This is a new rule by the Central Utah STEM Fair Committee. Pictures can be taken and mounted on the display board and/or in the journal. A 1-minute video can be shown to the judge during the interview.

When creating your display board, DO NOT include the following:

- Living organisms
- Plant material (living, dead, or preserved)
- Taxidermy specimens or parts
- Preserved animals including embryos
- Human or animal food including seeds
- Human or animal parts or body fluids
- Soil, sand, rocks, or waste samples
- Laboratory/household chemicals including water
- Poisons, drugs, hazardous substances or devices
- Sharp items, scissors, glass, syringes, needles

- Dry ice or other sublimating solids
- Flames or highly flammable materials
- Empty tanks that previously contained combustible liquids or gases
- Batteries with open top cells
- Photographs of children under 18 other than yourself or your family without parental written permission
- Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissection, necropsies, other lab techniques, improper handling methods, improper housing conditions, etc.

VIII. **Maximum project size at the District Fair:**
- 30 inches deep; 48 inches wide; 108 inches high

Jordan School District reserves the right to remove anything displayed in a student's STEM Fair project that may be deemed hazardous or inappropriate for public safety.

JORDAN DISTRICT ELEMENTARY STEM FAIR
The Computer Design Journal

All students entering the Jordan District Elementary STEM Fair must have a journal. The journal is the literacy area that connects the writing, reasoning, research, planning, evaluation, and conclusion to the STEM fair project. Everything that is written in the journal can be questioned by the interviewer.

The Computer Design Journal consists of four main parts:
➢ Title Page
➢ Table of Contents Page
➢ The Computer Design Pages

1. Title Page
The title page consists of the project title, student name, school, and date.

2. Table of Contents
Make a table of contents that shows where the component pages of the Computer Design are found.
- Need Defined Page
- Research Page (include the sources used)
- Design Requirements Page (criteria and constraints)
- Design Plan Pages
- Code Program Testing and Evaluation Pages
- Reflection Pages

3. The Computer Design Pages
In this section, you will write what you did or discovered by following these components of the Computer Design.
- Need Defined Page
- Research Page
  - Written research ideas learned
  - List of three sources uses
- Design Requirements Page
  - The Criteria
  - The Constraints
- Design Plan Pages
  - Preliminary Solution Coding Designs
  - Final Solution Coding Designs
  - Data Gathering Plan
- Code Program Testing Pages
  - Testing, Recording, Data Analysis, and Redesigning
  - Follow up Testing, Recording, Data Analysis and Redesigning
  - Surveys Administered to Others for Data Collection
- Reflection Pages
  - Detailed Account of creating the computer program
  - Conclusions of what was learned
  - Application to Real World Ideas

JORDAN DISTRICT ELEMENTARY STEM FAIR
The Computer Design Display Board

Create a display board so your findings can be shown at the Jordan District Elementary STEM Fair. It is a summary of your project and reflects your journal. This is your showcase. Make it creative and colorful. Below are ideas for a good display board.

- Physically sound and durably constructed, able to stand by itself.
- Title of your project at the top.
- Show all the steps of the Computer Design process (research in journal) with a brief explanation of each: the need; design requirements; preliminary and final code designs; code testing by others, recording, and analyzing data; code redesigning with retesting by others, recording, and analyzing data as needed; and conclusion. The research will be in the journal.
- Well-organized and easy to follow from one idea to the next.
- Clarity of all graphics and legends for easy understanding.
- Neat, edited, and without scribbles and misspelled words.
- Creative, pleasing to look at, colorful, with different font sizes to show emphasis.
- Photos of the developing experiment. (Only the students doing the experiment and family members can be displayed on the board. Others need parent permission if under 18 years of age.)
- Drawn pictures, artwork, and icons that bring out the ideas of the experiment.
- Supporting documentation sited or displayed on the board.

No items can be displayed in front of the display board except for the journal. This is a new rule by the Central Utah STEM Fair Committee. Pictures can be taken and mounted on the display board or in the journal. A 1-minute video can be shown to the judge during the interview.

When creating your display board, do NOT include the following:

- Living organisms
- Plant material (living, dead, or preserved)
- Taxidermy specimens or parts
- Preserved animals including embryos
- Human or animal food including seeds
- Human or animal parts or body fluids
- Soil, sand, rocks, or waste samples
- Laboratory/household chemicals including water
- Poisons, drugs, hazardous substances or devices
- Sharp items, scissors, glass, syringes, needles
- Dry ice or other sublimating solids
- Flames or highly, flammable materials
- Empty tanks that previously contained combustible liquids or gases
- Batteries with open top cells
- Photographs of children under 18 other than yourself or your family without parental written permission
- Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissection, necropsies, other lab techniques, improper handling methods, improper housing conditions, etc.

Jordan School District reserves the right to remove anything displayed in a student's STEM fair project that may be deemed hazardous or inappropriate for public safety.

JORDAN DISTRICT ELEMENTARY STEM FAIR
The Computer Design Interview

The judge's interview gives you the opportunity to explain your project. The judge wants to know how much you know about your project.

The judge's interview gives you the opportunity to explain your project. The judge wants to know how much you know about your project.

- How you came up with the idea
- How you personalized it to make it unique
- How you prepared it
- What outside help did you get
- What you learned
- Connections to the real world

- How you set it up
- The procedure of your project
- What information you discovered
- What the information means
- What your final conclusions are

The judge also wants to know your background knowledge about the subject you chose. Some of the judges' questions may not be about your project. He/she may ask questions related to your topic. For example, if you designed a program about recognizing different kinds of bacteria growth found in pond water, it would be well to know about the different kinds of bacteria that exist, the bacteria that do and don't cause diseases, and the substances that have been discovered to fight against bacteria growth. Even though this information is not entirely what your project is about, it shows you have done research about bacteria.

Some questions that might be asked:
- Explain where you got your idea for the project.
- What did you do to personalize it and make it unique?
- Explain the project method you used.
- Why did you choose this subject?
- What are your requirements?
- Explain your coding designs.
- Explain your codes.
- Explain your results.
- Describe how your program works.
- Explain your procedure.
- Explain your conclusion.
- How does the result relate to your background knowledge?
- How does the result help you in understanding the world better?

- How does your project have practical applications?
- Specific background knowledge about your subject.
- What problems did you run into?
- How could you have improved your project?
- If you did it again, what would you change?
- What questions do you have now?
- Tell some ideas you learned from your research.
- How did the research help you with your project?
- How much time did you spend on your project?
- How did others help you or give you ideas?

Be excited about your project when you speak. Don't talk too fast. Elaborate on your answers. Help the judge understand your project by speaking clearly in an organized manner so it's not confusing. **You need to show evidences of learning.**

Judges do not want you to go through the whole program on the computer for them. Their interest lies in your knowledge of the Computer Design process, the project design, the display board, the results, and the knowledge you acquired.

2019-20 JSD ELEMENTARY STEM FAIR
COMPUTER DESIGN JUDGING SHEET

Name(s) _____   _____

_____   **Judge Number**

School _____

Project Title _____   #_____

Journal	Please Write Comments	Score
Title Page Title, name, school, date		**/4**
Table of Contents All steps of the computer design process listed: Need, Research, Design Requirements, Design Plan, Testing, and Reflection.		**/6**
Computer Design Process **Define a Need** A practical need or a problem to be solved is clearly defined.		**/3**
Research Well-written research notes, in their own words, comprehensive, and contributes to field of study.		**/10**
At least three cited references.		**/3**
Design Requirements Explanation of the criteria for the proposed solution (what you want it to do)		**/5**
Explanation of the constraints (the limitations)		**/5**
Design Plan Shows an exploration of progressive ideas of alternative code designs to answer the problem or need.		**/5**
Identification of a final written code to answer the problem or need.		**/5**
Data gathering plan is well designed, systematic and organized.		**/5**
Program Testing, Analyzing, and Redesigning After programming, first testing of the code shows sufficient data gathered with written analysis and redesigning.		**/5**
Follow up testing with sufficient data gathered with written analysis and redesigning.		**/5**
Surveys were administered to others to collect data.		**/5**
Program demonstrates coding skills and completeness showing the criteria and constraints of the program being met.		**/5**
Reflection Student writing describes a detailed account of the process involved in creating the program		**/6**
Shows strong, reasonable conclusions.		**/6**
Shows strong applications to real world ideas.		**/6**
Student learning is evident in the writing.		**/6**
Overall Journal Presentation Neat, organized, and complete computer design shown.		**/6**
Make sure you look at each point value before you score it.	**Side One Total**	**/100**

\#_____

Score	Display, Interview, Project Design	Please Write Comments
/3	**The Display** Computer Design Process is neat, edited, and Physically sound.	
/10	**Computer Design Process** is displayed: **Need**; **Design Requirements**: criteria and constraints; , **Design Plan**: preliminary coding design, final coding design, data gathering plan; **Testing**: recording, analysis, redesigning; Reflection: **Reflection**: detailed account, conclusions, application to real world ideas. **(Research need not be on board.)**	
10	Computer design process shows clarity of words, graphics, legends, is self-explanatory, and flows in a logical order. **Supportive documentation on the board.**	
/7	Board design demonstrates exceptional, and significant, though out creativity.	
/10	**Interview** Student shows a basic knowledge of field studied closely relevant to the project.	
/10	Student is able to clearly explain the Computer Design Process with the results of the project and its potential impact on computer programming.	
/10	Student gives thoughtful responses to questions and understands the interpretation and limitations of the results.	
/5	Student shows interest, enthusiasm, and a passion toward the project and has quality ideas for further research.	
/10	**Project Design Follow Through** Significant innovative, creative and procedural approach with ingenious use of materials and equipment to solve the practical need equal to at least a 5th/6th grade level thinking.	
/10	Project shows exceptionally strong in-depth thought and work to design and program a computer with excellent follow through to solve the need.	
/5	Student shows a large degree of independence in developing and conducting the project.	
/10	Student shows recognition of potential implication in computer science and society, demonstrating a strong, interpretive conclusion with useful connections to the real world.	
/100	**Each line has different point values. Please make sure you look at each point value before you give a score.**	**Side Two Total**
/100		**Side One Total**
/200		**Total Overall Score**

Elementary STEM Fair Project Category Subjects

Life Science
- Cells
- Organs
- Human Body and its systems
- Immune System
- Physiology
- Behavior
- All animals
- All bugs
- Plants
- Heredity
- DNA
- Genes
- Evolution
- Adaptation
- Extinction
- Ecosystems
- Food Chains
- Food Webs
- Biomes, habitats, environments
- Freshwater and salt water ecosystems
- Classification and kingdoms
- Microorganisms

Earth and Environmental Science
- Maps
- Latitude, longitude
- Structure of the earth
- Minerals
- Rocks, rock cycle
- Plate tectonics
- Earthquakes
- Volcanoes
- Mountains
- Weathering
- Erosion
- Soil
- Deposition
- Earth history
- Fossils
- Continents
- Ocean
- Ocean currents
- Ocean floor
- Ocean life zones
- Water cycle
- Weather

- Global winds
- Weather
- Clouds
- Air masses
- Air pressure
- Wind
- Humidity
- Climate
- Seasons
- Environmental issues
- Pollution issues
- Atmosphere issues
- Water issues
- Atmosphere issues
- Ocean issues
- Habitat issues
- Composting

Physics, Astronomy, and Math Science
- Forces
- Motion
- Electricity
- Magnets
- Friction
- Work
- Simple machines
- Lift
- Energy
- Light
- Sound
- Heat
- Electromagnetism
- Moon
- Earth's revolution and rotation
- Eclipses
- Solar System
- Tides
- Planets
- Asteroids
- Comets
- Stars
- Galaxies
- Constellations
- Micrometeorites
- Space dust
- New proofs in math
- Geometric studies

Elementary STEM Fair Project Category Subjects
(Continued)

Chemical Science
- Matter and states of matter
- Chemical and Physical changes
- Atomic structure
- Atoms
- Elements, Molecules and Compounds
- Periodic Table
- Chemical equations
- Mixtures and solutions

Consumer Science
- Testing products that are seen on advertisements to see if they really do what they are supposed to do.
- Testing products against each other to see which is the best such as popcorn, diapers, cereals, gum, soda pop, oil in potato chips or French fries, stain removers, soaps, paper towels, and bandages, etc.

Engineering Design is a project that:
- Defines a need for what you want to construct.
- Establishes the requirements needed for the development of the prototype.
- Has pictures showing what the design of the prototype will look like.
- A prototype is built according to the directions planned.
- The prototype is tested and does what is it supposed to do.
- A conclusion is written of what was learned.

Computer Design is a project that:
- Defines a need for what you want the program to do.
- Establishes the requirements needed for the development of the program code.
- Has written program codes to achieve the desired results.
- A program is coded into your computer.
- The program is tested and does what it is supposed to do.
- A conclusion is written of what was learned.

For Definitions of each category visit this webpage:

http://cusef.byu.edu/elementary_categories/

Directions for Filling out the 2020 Central Utah STEM Fair Entry Form for the Jordan District Elementary STEM Fair

All 5ᵗʰ and 6ᵗʰ grade students entering the Jordan District Elementary STEM Fair must fill out the 2020 Central Utah STEM Fair (CUSF) Entry Form. There are certain rules that students must follow in doing a STEM fair project. If these rules are not followed the project can be disqualified at the district and regional levels. Filling out this form correctly and completely will guarantee admittance to all STEM fair levels of competition.

The Central Utah STEM Fair (CUSF) Entry Form is found on the Jordan District Elementary Science Webpage. Click below or see the Table of Contents Page on how to download it and print it out.

- [English Entry Form--2020 Central Utah STEM Fair Elementary Entry Form](#)

- Spanish Entry Form–2020 Central Utah STEM Fair Elementary Entry Form

Below are the directions on how to fill out the CUSF Entry Form. Completion of this form does not guarantee advancement to the CUSF but it will show that you have followed all the STEM fair rules for all competition levels.

If you are doing this project as a group (maximum of three students per project) you will only need to fill out one form. However, every student on the team needs sign the bottom of the 2ⁿᵈ page along the respective parent or guardian of each student.

Page One—Student and Project Information

1. **Project Information:**
   - This is to be filled out by you and anyone else who is doing this project with you. There can have up to three students per project.

2. **Required Project Approval:**
   - **Your science teacher must sign the Elementary Form right under "Required Project Approval—I completed a project" with the date.**
   - Some projects require special signatures from professionals before a student can begin them. These experiments may cause harm to humans and vertebrate animals without being screened. Laws have been set up to protect humans and animals from being hurt, disgraced, or diseased. **Also, written permission from each participant tested is needed. If any of the subjects are under 18, written permission is needed from a parent of each child.**

   Check all the boxes that apply:

   ➤ **If you are working with humans as subjects, prior approval** from a psychologist (could be from the school), medical doctor, or registered nurse. Have him or her sign on the line provided on the form with the date.

   ➤ **If you are working with non-human vertebrate animals as subjects, prior approval** from a veterinarian. Have him or her sign on the line provided on the form with the date. Proper animal care must be provided daily and there cannot be any pain or discomfort.

Directions for Filling out the 2020 Central Utah STEM Fair Entry Form for the Jordan District Elementary STEM Fair
(Continued)

> **If you are working with potentially hazardous biological agents (bacteria, mold, fungi, viruses, parasites, fresh human or animal tissues),** you must get **prior approval** from a biomedical or biological scientist. Have him or her sign on the line provided on the form with the date. The growing of unknown microorganisms must be grown in a sealed, unbreakable container such as a Petri dish and stayed sealed during the whole experiment. **The containers must be kept and observed in an authentic science lab (BSL-1 laboratory) for observation and not in the home. If this experiment is done at home the project will be disqualified.**

> **If you are working with controlled substances,** you must get **prior approval** from a biomedical or biological scientist. Have him or her sign on the line provided on the form with the date. All laws in handing the controlled substances must be followed. An adult must be present and supervise the experiment.

> **If you are working with hazardous substances or devices,** you must get **prior approval** a school administrator. Have him or her sign on the line provided on the form with the date. Students must follow the laws in handling these substances or devices. An adult must be present and supervise the experiment.

Page Two—The STEM Fair Project Research Plan

3. Project Category:
> Select a category that best fits your project. Ideas are on pages 10a and 10b.
> For Definitions of each category visit this webpage:
> http://cusef.byu.edu/elementary_categories/

4. Project Details:
1. Fill out all the parts of the Project Details. Failure to fill out all the lines will result in the paper given back to you to fill out. **We will not accept an incomplete form.**

5. Display and Safety Rules:
> Be sure to read and understand all the display and safety rules. They must be followed when displaying your project.
> **There can be no items in front of the display board except your journal.**
> Anything that is on the list that is on the display board you will be asked to remove them.
> **Student and Parent Signatures are needed to compete in the JSD STEM Fair**
>> i. The student and the parent/guardian signatures must be acquired before entering the school, district and CUSF fairs.
>> ii. This shows the student and parents have followed all the rules of the STEM fair.