JOYS PARTICIPATION BOOKLET 2024

JORDAN YOUNG SCIENTIST
علماء الغد

TO REGISTER, PLEASE READ THE BOOKLET CAREFULLY AND THEN FILL OUT THE FOLLOWING FORM: **PARTICIPATION FORM**

After you finish the registration form, you will be contacted and we will keep you posted on everything you need to know and any developments.

Note: A detailed introductory session will be held for all participants to answer your questions and explain the idea of the program.

For more information and for any inquiries, please contact:
Jordan Young Scientist Lead Coordinator: Eng. Manar Issam Abdullah via:
Email: info@jordanys.org
Phone number: 077-044-69-44

You can review previous experiences of JoYS on our social media pages:

- JoYS Instagram
- JoYS Facebook
- JoYS LinkedIn
- JoYS Twitter

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WHAT IS JOYS

JORDAN YOUNG SCIENTIST INITIATIVE

It is an initiative which is a new national program aimed at incentivizing and rewarding young people to study, apply and benefit from skills in science, math, engineering and technology. And to improve school teaching standards, and direct the learning environment toward STEM innovation.

This initiative is based on a proven model that was originally implemented in Ireland over fifty years ago and in Kenya and Tanzania in the last ten years. Now it has been decided to introduce it in Jordan in order to foster innovation and develop skills that are necessary for the country's long-term development; to encourage young students to use scientific methodology in the physical, biological, and social sciences outside of their regular formal classes; and to facilitate the convening of an annual exhibition that will allow students to showcase their projects to the wider school community and the public.

JoYS program have three main pillars and they are Outreach, Exhibition and Bootcamp.

Through Outreach activities, students and teachers are exposed to different science experiences, mentorship, career guidance and counselling and creating inquiry-based experiences that transform learning.

Exhibition is a platform for the young people to showcase their talents in science, technology and innovation. And linkage opportunities with the government, academia, private sector, civil society and others for upscaling of the research and projects.

After that, winners are invited to attend Bootcamp which is a residential camp that equips winning students and their teachers from the Exhibition with critical entrepreneurship skills, communications skills, industries visits and scholarships for students.

HOW TO PARTICIPATE

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JORDAN YOUNG SCIENTIST COMPETETION

Young Scientist Jordan holds an annual exhibition of student projects submitted in four scientific areas at Al-Hussein Bin Abdullah II Technical University in the King Hussein Business Park.. During the event, students compete for prizes including the chance to win a trip to Ireland to present in the BT Young Scientist and Technology Exhibition. Eligible project teams will also get the change at to participate in a Business Bootcamp to help them commercialize their ideas.

ELIGIBILITY

The competition is open to secondary school students residing in Kenya. A team comprises of two students from the same school. The competition is open to Ordinary and Advanced level.
s (NGOs), libraries and the Internet may prove useful as you research your project; but please always make contact with institutions or organizations through your teacher.

WHAT TO DO NOW?

Think of a science-based idea that can be developed into a project, and work on it. The judges want to see your original research, not reams of words taken from some book or downloaded from the web. By all means use whatever help you can, but put your own individual stamp on whatever you do.
The first person you should talk to is your science or technology teacher. He or she will be happy to assist you in any way possible, offering guidance and advice as needed. Remember that universities, institutes of technology, relevant organizations, non governmental organization.

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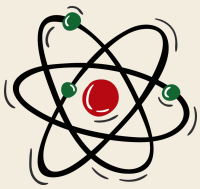
CATEGORIES OF JOYS

STUDENTS CAN CHOOSE TO ENTER A PROJECT IN ONE OF THE FOLLOWING FOUR CATEGORIES. PLEASE STUDY THE DEFINITIONS CAREFULLY AND BE CAREFUL TO CHOOSE THE CATEGORY THAT BEST FITS THE SUBJECT OF YOUR PROJECT.

CHEMICAL, PHYSICAL AND MATHEMATICAL SCIENCES



For a project to be accepted into this category, it must be based on chemistry, physics, mathematics, applied mathematics, engineering, computer programming and language, or electronics. Also eligible are projects based on earth and space sciences such as meteorology, geophysics, geology and astronomy.

TECHNOLOGY

For a project to be accepted into the Technology category, the core of the project must be the use of technology in new or improved applications, enhanced efficiencies, new innovations, or better ways to do things. The category could include projects related to the Internet, communications, electronic systems, robotics, control technology, applications of technology, biotechnology, innovative developments to existing problems, computing or automation. Students are also expected to understand the basic science behind the technology so that they can get the most from the project.

BIOLOGICAL AND ECOLOGICAL SCIENCES

For a project to be accepted into this category, it must have a biological and/or ecological focus and investigate aspects of animal, human, microbial or plant biology. Typically, projects deal with the following areas of study: Agriculture, anatomy, animal science, biochemistry, biotechnology, disease, ecology, environmental science, enzymology, food science, forestry, genetics, horticulture, medical science, metabolism, microbiology, molecular biology, physiology, physiotherapy, plant science or veterinary science.

SOCIAL AND BEHAVIORAL SCIENCES

For a project to be accepted into this category, it must cover social and behavioral sciences: Economic, geographical, psychological or sociological studies of human behavior, attitudes and experience; social analysis of environmental factors, demography, learning and perception; or the study of attitudes and behavior in relation to health, nutrition, work, leisure and living habits. Also eligible are projects on consumer affairs, effects on society, social anthropology and political science, provided they involve the use of scientific methods.

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PLANNING PROCESS

GET AN IDEA OF WHAT YOU WANT TO STUDY. IDEAS MIGHT COME FROM HOBBIES, OR PERHAPS PROBLEMS YOU SEE THAT NEED SOLUTIONS.

WHERE DO YOU GET YOUR IDEAS?

- A hobby or skill.
- Family.
- An article in a newspaper or magazine.
- TV program.
- Friends.
- Discussions with your teacher and parents.
- Courses you have recently completed.
- Local contacts: a doctor, vet, dentist, engineer, scientist...etc.
- Professional institutions / NGOs.

RESEARCH YOUR IDEA

Visit your local library or use the Internet to learn everything you can on your topic. Observe related events. Gather existing information. Look for unexplained or unexpected results. Visit a university or institute of technology. Talk to professionals in the field. Consult your teacher and parents. Write or email companies for specific information. Obtain or construct needed equipment.

ORGANIZING

Organize everything you have learned about your topic. At this point you should narrow your hypothesis by focusing on a particular idea. Your library research should help you.

MAKE A TIMETABLE

Choose a topic that not only interests you, but also can be done in the amount of time you have available. Leave time to fill out necessary forms to participate in Young Scientist Jordan. Certain projects require more time than others; allow plenty of time to experiment and collect data. Simple experiments do not always go as you might expect the first time, or even the second time. Also, leave time to write your report and put together an exhibit.

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PLANNING YOUR PROJECT 1

NOW, BEFORE YOU GO ANY FURTHER, THERE ARE A FEW SIMPLE QUESTIONS YOU MUST ASK YOURSELF:

- What am I trying to find out?
- How am I going to do this?
- Where can I get the help I need?
- What do I expect to learn at the end of my research?
- Have I access to the apparatus or equipment to carry out the work?

Once you are satisfied that you can really get to grips with your project, you will be able to enter the Planning Stage. Remember, only a few scientific discoveries are the result of chance or luck; the majority are the result of many hours of dedicated thought and experimentation.

CARRY OUT YOUR RESEARCH

Record each and every measurement, experiment or observation. At this stage, your project may fail completely. If so, it is still important to record and report the failure. Remember, a null result is still a scientific finding and an important guide to other scientists. Record all your observations and findings.

ANALYZE YOUR RESULTS

After you have completed all of your research, you need to examine and organize your results. Try to focus on how your results relate to your original topic and its objectives. Good results merit good presentation.

MAKE YOUR CONCLUSIONS

You are now ready to develop a theory to explain your findings. Keep an open mind on the results you get and the conclusions you reach.

EVALUATE YOUR PROJECT

You are now in a position to make recommendations and perhaps contribute through them to scientific knowledge. It is time to ask yourself the following questions:
Did I succeed in researching my topic?
Do my conclusions support my original hypothesis?
Have I added to the body of knowledge through my research?

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PLANNING YOUR PROJECT 2

RESEARCH IS THE ANSWER

Research is the process by which people create new knowledge about the world in which they live, in order to answer a question or solve a problem. When choosing your topic, give careful thought to how your research might enhance the world and its inhabitants.

Questioning is probably the most important part of scientific creativity and is often followed by an “if…then…” statement. Questioning usually leads to observations or experiments.

Good scientists, both young and old, use a process to study what they see in the world. By following the six stages listed below, you should be able to produce a superior scientific project.

1. Be curious, choose a limited subject, ask a question, identify or originate/define a problem.
2. Review published materials related to your problem or question.
3. Evaluate possible solutions and make your educated guess (hypothesis).
4. Challenge and test your hypothesis through experimentation (data collection) and analysis.
5. Evaluate the results of your experiment and reach conclusions based on your data.
6. Prepare your report and exhibit.

As a scientist, you should learn to be skeptical about all research results, especially your own. A good experiment may or may not answer the questions asked – but almost always leads to fresh questions that require new experiments or observations. The final hypothesis is often developed after running a number of preliminary experiments, analyzing a body of results, and reaching a tentative conclusion.

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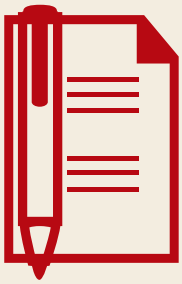
DATA COLLECTION 1

- **DOCUMENTARY SOURCES**

Documents can be used as the basis for an entire study or simply to set an issue in historical context. Personal documents, used judiciously, can be useful in providing information. Try to ensure that the documents you reference are the most current available. Photographs and maps may also be used.

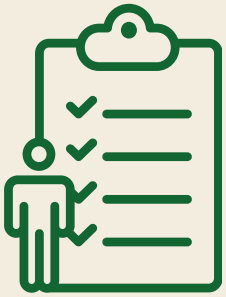


- **OBSERVATIONS**

Observation is one of the primary methods of collecting data, but care must always be taken to ensure that data are observed in an unbiased way. The observer's senses may not be able to record everything. Also, if the observers are watching people, animals or other organisms that may change their behavior because they are being observed, the results may be invalid.

- **SURVEYS**

Questionnaires, interviews and schedules are some of the techniques used in conducting survey work. If you are conducting a survey, consider the following carefully:



1. Questionnaire design merits great attention.
2. Good interviewers do not influence the answers given during an interview. Work from prepared questions.
3. Your questions should be clear and concise, and they should be designed to gather relevant information.
4. Test your questionnaire in advance on a small section of the population – this is called a pilot survey. This will identify the questions that need changing, which will lead to a more effective questionnaire.
5. If you are recording any type of behavior by animals, plants or humans, it is advisable to use a diary or journal to record your observations.
6. It is very important to think through how you are going to analyze the results you will get.

- **TESTS, MEASUREMENTS AND EXPERIMENTS**

Tests, measurements and experiments should be used only if they are relevant to your research and if you are capable of doing and understanding them yourself. Particular attention should be given to the design of experiments, the requirement for controls, sufficient replication and repeat experiments where appropriate.

Ensure that any testing or experimentation you undertake is not dangerous: That is, be sure it will not put you or others at risk of injury or disease.

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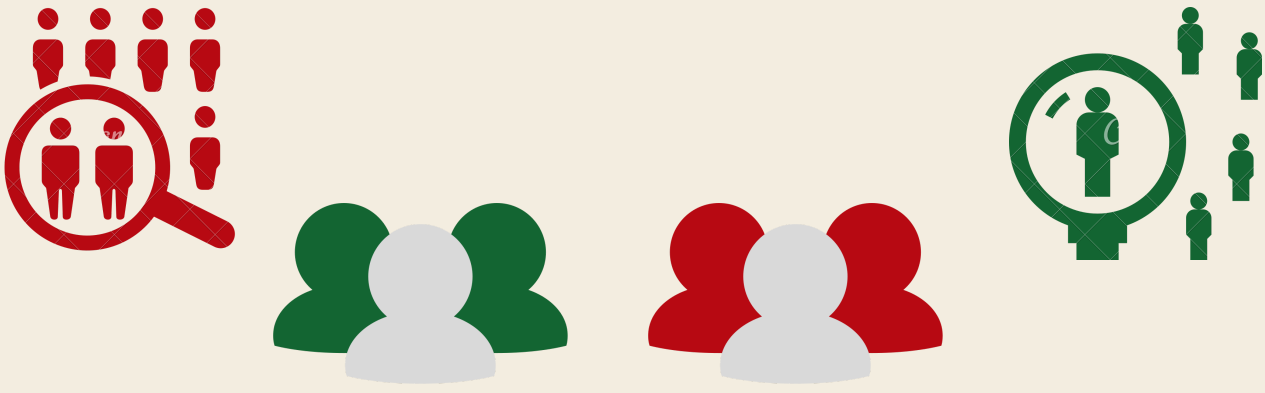
DATA COLLECTION 2

GUIDELINES ON SAMPLING

- Remember to use a representative sample.
- A random sample means that every member of a population has an equal chance of being chosen (e.g.; pulling numbers from a hat).
- A systematic sample takes every nth member from a population.
- Stratified sampling uses the idea of groups or classes within the population being analyzed.
- Any group that shares similar characteristics and has boundaries may be termed a population. (Therefore, it is perfectly acceptable to refer to plant populations.)
- Quota sampling means that if you want to interview, for example, 200 people about shopping, you could go to a particular part of town where you would be likely to meet shoppers. You may have pre-set guidelines, such as age group and numbers of men and women. However, this is not a statistically random sample.
- When sampling a population, you may also need to use a control group. If, for example, you were testing the effects of a particular experience on a group of people, you would need a control group of the very same type of people, who have everything in common except the particular experience.
- Case studies, which look at a small number of individuals and a particular context in depth, may be useful in helping to understand how a particular process works. Such case studies can help inspire a better way to formulate a hypothesis for testing with a large sample.



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DATA COLLECTION 3

GUIDELINES ON STATISTICS

What techniques can you use to analyze data? There are three main procedures you might use:

1. You could summaries your data.
2. You could try to explain patterns which emerge, using comparison techniques.
3. You could carry out a significance test; for example, a t-test.

SUMMARISING DATA

“Summarizing” data is just what it sounds like. It is a way of reducing the bulk of data to a more manageable size, as well as a means of seeing the emergence of certain patterns. In summarizing, you can put data into groups or classes. You can also measure typical values, such as the mean, mode and median. Some data, of course, will not be accurately described by these statistics. Such situations require a summary technique to measure movement away from the average, called deviation from the mean.

COMPARING DATA

We can compare data in the following ways: Firstly, we could compare the similarities and differences among the data. Secondly, we could use statistical techniques to compare the data. These techniques are widely used to compare variables.

SIGNIFICANCE TESTS

When you have made your comparisons and conclusions, you need to know if they are really significant. Significance tests are used to make sure that results from comparing one data set with another are not the result of chance.

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POTENTIAL CHALLENGES

JUDGES HAVE IDENTIFIED THE MOST COMMON WEAKNESSES THAT AFFECT PROJECTS AT THE ENTRY STAGE. A PROJECT WITH ANY OF THESE WEAKNESSES MAY NOT BE QUALIFIED FOR JOYS EXHIBITION

- **LACK OF ORIGINAL PRIMARY RESEARCH**

Some studies are little more than a description of what is already known about the topic. Researching the existing body of knowledge is only the first stage of any scientific study.

- **UNRELIABLE EXPERIMENTAL METHODS**

Frequently, projects state a particular method for data collection that simply cannot collect the data required. Often students are collecting are attitudes and opinions, rather than scientifically reliable data.

- **VAGUE OR UNFOCUSED OBJECTIVES**

Scientific research requires you to be very specific about what you wish to find out, and setting measurable objectives is the only way to present scientific investigation. Much thought should be given to focus and scope when developing your project.

- **LACK OF ORIGINALITY**

The specific question raised in a project must be one that has not been posed and recorded by any previous scientist.

- **UNSUITABILITY OF TOPIC**

A topic must be able to be scientifically proven or disproved by research methods available to second level students. A project on whether or not Jupiter is inhabited by living creatures, for example, is not a suitable topic.

- **LACK OF SCIENTIFIC CONTENT**

Often proposals are submitted that are not scientific projects, but essentially literature reviews. These proposals are information collection exercises and not scientific studies.

- **SAFETY ISSUES**

Projects which put the students themselves, animals, or others at risk of physical injury or disease will not be accepted for the exhibition.

- **ETHICAL ISSUES**

Projects which put the students themselves, animals, or others at risk psychologically or emotionally will not be accepted for the exhibition.

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ADDITIONAL INFORMATION

- **IS EXTERNAL HELP ALLOWED?**

It is expected that all or the majority of the work for a project will be conducted in school, the home or an outside environment. Understandably, some projects may involve visiting distant locations.

Students may seek advice or information about their project from sources beyond their school, such as on the Internet or from government organizations, universities, institutes of technology or other experts.

However, it is recommended that the majority of students' work be conducted under the supervision of their relevant teachers, with appropriate levels of involvement by parents, guardians or other responsible adults.

When experimental/research work is conducted by the students themselves, or on their behalf, in a laboratory that is external to their school (e.g. in a local university, a hospital or an industry), that work should be clearly identified and acknowledged within the project report book and presentation.

In addition, it is a requirement that a cover letter from the external facility is included in the project report book that describes the extent of the assistance provided and the work done by the students within that facility or undertaken on behalf of the students.

- **INTELLECTUAL PROPERTY RIGHTS**

If your project includes products or processes that possess or contain new functional or technical aspects, you might consider applying for a patent.

Please note that it is unwise to make any public disclosure of an invention or to put it into use publicly – at an exhibition, for example – before an application for a patent has been made, as such action may prejudice the obtaining of a valid patent.

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PRIMARY LEVEL

PARTICIPATION APPLICATIONS MUST BE SUBMITTED IN ARABIC OR ENGLISH!

APPLY NOW

Your application will consist of two parts upon submission:

- **PROJECT PARTICIPATION FORM**

In addition to other information, you will provide the title of your project in the entry form. The title of the project should accurately reflect the scientific content of the project. Avoid using what you think is clever or attractive, such as headlines that are generally misleading and do not necessarily impress the judges.

The chosen title will appear in your booth in the exhibition and the printed program if your project qualifies for the event at Al Hussein Technical University. Accordingly, please ensure that all spellings are correct.

- **ONE-PAGE REPORT**

The bid is a very important document because it will form an important part of the process by which the judges decide if your project is acceptable. The presentation should explain to the judges what your project is about to help them determine whether you have actually done some research and if you are serious about participating. Therefore, care must be taken when preparing this document.

- **ONE-PAGE REPORT SETUP**

- It's time to write the one-page presentation when you decide what the project is and do some research and experimentation. This not only helps you organize your ideas, but also helps you prepare the topic for your project.
- The presentation should be as brief as possible, so it is called a "one-page report." This will not only organize your thoughts, but will help prepare the topic for your project. This brief description of your idea of the project and the work you intend to undertake is essential to the evaluation process.
- The idea of a "one-page presentation" is to give you an opportunity to write descriptive text about your study that shows your understanding of the topic.
- The presentation does not require a comprehensive scientific vocabulary. The presentation should be as brief as possible and be presented in an electronic copy (in Word or PDF format). The size should be limited to one A4 sheet of 500 words. And remember to mention any institutes or people you contacted for information.
- Please make three copies of your presentation upon completion, two copies of which must be submitted to your teacher well before the September 30th application deadline. Your teacher will keep one copy and send the other copy to the JoYS . Keep the third copy intact for your reference. And your mentor will communicate directly with the scientists of tomorrow. to submit your offer. The decision as to whether or not your project is eligible to participate in the annual exhibition in Amman will be made based on your initial request, so a one-page report is very important.

JOYS INITIATIVE COMPETITION: PARTICIPATION FORM

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ATTENDING JOYS EXHIBITION

AT THE EXHIBITION

- Once you arrive at the venue and register, you will receive your exhibitor pass and student pack.
- Your stand number will be confirmed when you register.
- Go to your stand and set up your project in the space provided. If you can, bring sticky tape, a stapler, scissors, Blu-tac and whatever else you need to display your project.
- Your project will be judged three times by three different judges.
- The judges can spend only approximately 15 minutes at your stand, so be prepared when they arrive. They will ask you to tell them about your project and then move on to more specific questions.
- Make sure any mobile phones are turned off during the judging times. Make sure that each person from your team does some of the talking. The team leader should introduce all members and explain what sections each team member will be talking about.

If you have any questions or queries, ask a member of the JoYS staff available on the floor during the event. They will do whatever they can to assist you. The judges have the right to re-assign your project to another category during assessment at the event.

THINGS TO REMEMBER!

You must register first at the main entrance of the HTU, where you will receive an exhibition pass. After registration, security will allow you to bring projects into the center. Security will not allow anyone to gain entrance without an exhibition ID pass.
Your project will be part of the exhibition until the event closes. Projects may not be removed before this time.
You must be at your stand during judging times and have at least one representative of your team/school present when the event is open to the general public.
Young Scientists Jordan cannot take responsibility for any items that may be lost, stolen or misplaced during the event.

WHAT THE JUDGES LOOK FOR?

The judges will look for creative ability, scientific thought and approach to the work, thoroughness, skill, clarity and teamwork.

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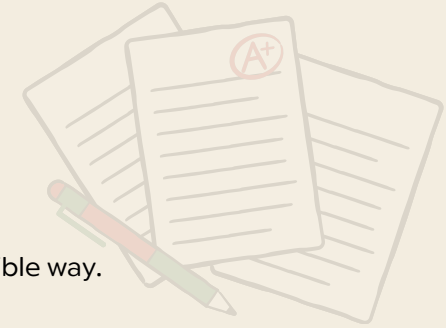
TIPS FROM JUDGES

WHEN IT COMES TO BEING SUCCESSFUL AT JOYS, THERE REALLY IS NO SUBSTITUTE FOR HARD WORK. THAT SAID, WE WANT TO GIVE YOU AS MUCH HELP AS WE CAN ALONG THE WAY. THE FOLLOWING ADVICE AND TIPS FROM OUR PANEL OF JUDGES MIGHT MAKE YOUR JOB A LITTLE EASIER!

- Start to work on your project as soon as you can. Some projects can take a lot longer to complete than you envisage when you start.
- To succeed, you have to be interested and involved in your project from the beginning.
- Don't leave things to chance or guesswork. Research your project well, so you'll be able to deal comfortably with any queries that come your way, whether they be from the judges or members of the public.
- Keep a detailed project diary for your work. We all forget things, and this may help you answer judging queries at a later date.
- Accurate use of scientific methods counts for a lot when judging begins, so take your time and make sure that all your facts and figures are correct. Don't be afraid to ask your teacher when unsure about something.
- The project title should accurately reflect the aims of the project. Avoid catchy titles, as they do not tend to impress the judges.
- Be original. Make your project stand out from the crowd by giving good solid reasons for your choice of subject.
- Make your exhibit as attractive as possible. Presentation may not be everything, but clear, concise work shown in an attractive manner can only benefit you when judging takes place.

- **JUDGES EVALUATE AND FOCUS ON:**



- What you did in the current year.
- How well you followed scientific methodologies.
- The detail and accuracy of research as documented in your report book and notebook.
- Whether experimental procedures were used in the best possible way.
- Judges look for research that is well thought out.
  They consider how significant your project is in its field, as well as how thorough you were.
  Did you leave something out? Did you start with four experiments and finish only three?

- **GOOD COMMUNICATION**

Judges applaud students who can speak freely and confidently about their work. They are not interested in memorized speeches – they simply want to talk with you about your research to see if you have a good grasp of your project from start to finish. Besides asking the obvious questions, judges often ask questions to test your insight into your project, such as 'What was your role?'; 'What didn't you do?'; and 'What would be your next step?' Remember: A little enthusiasm goes a long way!

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PROJECT ELEMENTS 1

- **PROJECT REPORT BOOK**

Your report book should include no more than 12 pages, New Times Roman font, size 12 for text and 14 for headings of text (word processed where possible) including appendices and references:

- Title page: This contains the name of your project, the name of your school, and the names of participating students.

- Comments page: Put a page into your report book which may be signed by a judge. Again please note that not all assigned judges will necessarily sign your report book.

- Contents page: This includes the sections and page numbers of the report.

- Summary/Abstract: This is a very important part of your project. Ideally it should be about two pages long and include a short summary of your project. Someone reading this summary should understand what you were setting out to achieve and what your main results and conclusions are.

- Introduction: This should set the scene for your report. Why did you undertake the project, and what did you hope to achieve? In this section you should also refer to experiments, surveys and questionnaires, describing the part they played in your project. Make sure you refer to previous research in your subject area.

- Experimental methods: This section should describe the experiments you carried out. Keep in mind the value of diagrams and illustrations.

- Results: You should include a good sample of your measurements and all of your important results in this section. You can include the bulk of your readings and measurements in appendices.

- Conclusions and recommendations: You should comment on the results of your work in this unit. Be clear and concise. How does your work compare with existing theories? How accurate is the data you got from your study? What are the strong and weak points of your methods? How might your work be extended and improved? Does your project contribute to scientific knowledge and research?

- Acknowledgements: At the end of your report, acknowledge any help you received during the project; for example, from teachers, companies, institutions or parents.

- Appendices: Include additional information, reports and any relevant letters or correspondence.

- References: List any books, articles, web pages and other reference sources that helped you in your project.

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PROJECT ELEMENTS 2

- **PROJECT DIARY**

All entrants must keep a diary of their projects. You should not trust yourself to remember facts and details. Record everything in your diary and use it as an information store for writing your report. You can even write personal comments about how your project is going and what your progress is like. If relevant, record the prevailing atmospheric conditions (e.g., temperature, rain or sunshine, etc.). Remember to record all of the names of books you have looked up and all the people or institutions you have contacted.

- **POSTER**

Your poster should be only a summary of your project. Do not try to display your entire project. Cover just the main points and highlights. Plan your display well in advance. Use a map or plan to help you make the best use of your space. Work out the dimensions of everything you want to include. How your project is displayed on your stand will be taken into consideration by the judges when reaching their decision.

The visual display of your project should have the following characteristics:

- **GOOD TITLE**

Your title is an extremely important attention-grabber. A good title should simply and accurately reflect your research and the aims of your project. The title should make the casual observer want to know more – however, as previously mentioned, it is best to avoid “catchy” titles as they do not tend to impress the judges.

- **PHOTOGRAPHS**

Many projects involve elements that may not be safely exhibited at the event, but that are nonetheless important to the research/findings. You might want to take photographs of important parts/phases of your experiment to use in your display. Photographs or other visual images of human test subjects may be used only if you have obtained informed consent.

- **GOOD ORGANIZATION**

Make sure your display is logically presented and easy to read. A glance should permit anyone (particularly the judges) to quickly locate the title, experiments, results and conclusions. When you arrange your display, imagine that you are seeing it for the first time.

- **EYE-CATCHING DESIGN**

Make your display stand out. Use neat, colorful headings, charts and graphs to present your project. Home-built equipment, construction paper and colored markers are excellent for project displays. Pay special attention to the labeling of graphs, charts, diagrams and tables. Each item must have a descriptive title. Anyone should be able to understand the visuals without further explanation. Make sure the text is large enough to be read easily.

- **COMPONENTS THAT ARE WELL-CONSTRUCTED AND CORRECTLY PRESENTED**

Be sure to adhere to the size limitations and safety considerations when preparing your display. Display all required forms for your project. Make sure your display is sturdy, as it will need to remain intact for quite a while. Do not hesitate to ask for advice from adults if you need it.

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PLAGIARISM & ETHICS

- **WHAT IS PLAGIARISM AND HOW CAN STUDENTS AVOID IT?**

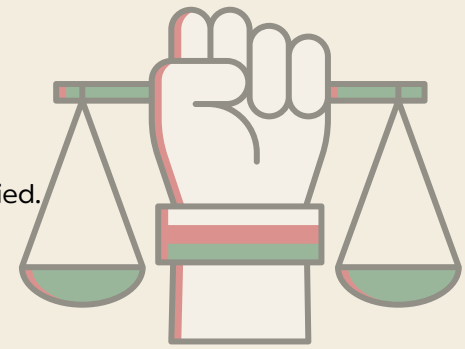
- Plagiarism is using others' ideas and words without clearly acknowledging the source of that information.

To avoid plagiarism, you must give credit to sources whenever you use:

- Another person's idea, opinion or theory.
- Any facts, statistics, graphs, drawings – any pieces of information taken from outside sources – that are not common knowledge.
- Quotations of another person's actual spoken or written words.
- Paraphrase of another person's spoken or written words.

- These guidelines apply irrespective of the source of the information.
- Plagiarism of any kind will result in immediate disqualification from the competition, save in the absolute discretion of JoYS and the judges.

- **ETHICS**



- Scientific and technological investigations and applications must be undertaken with integrity through the use of rigorous methods.
- Participating students must ensure that any involvement of people as participants in their research is always fully justified.
- Participants have a duty to protect the well-being, dignity and privacy of individuals.
- The welfare of any animals that are subject to investigation must always be respected, and likewise any experimentation carried out in the natural environment must avoid adverse impacts.

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PRIZES

ACCORDING TO JOYS TERMS AND CONDITIONS

- **OVERALL WINNER OF JOYS**

1. Money Prize.
2. JoYS Cup for the year (permanent).
3. Participation in the training camp for scientists of tomorrow.
4. Training courses with several local and international partners.
5. Media appearance on the official pages of the initiative.
6. An all-expenses-paid trip to Dublin for the winning team and their mentor to visit the Scientists of Tomorrow exhibition.
7. BT Young Scientists Ireland Exhibition in January of the year following the win.

*** **Category Prizes** take the form of the first, second and third prizes in the Advanced and Basic sections of each of the four categories:

1. Chemical and physical sciences and mathematics
2. Technology
3. Biological and Environmental Sciences
4. Social and behavioral sciences

- **WINNERS IN 1ST PLACE FOR EACH CATEGORY OF JOYS AT THEIR LEVEL**

1. Prize.
2. JoYS Cup (permanent).
3. Participation in the training camp for scientists of tomorrow.
4. Training courses with several local and international partners.

- **WINNERS IN 2ND PLACE FOR EACH CATEGORY OF JOYS AT THEIR LEVEL**

1. Prize.
2. JoYS Cup (permanent).
3. Training courses with several local partners.

- **WINNERS IN 3RD PLACE FOR EACH CATEGORY OF JOYS AT THEIR LEVEL**

1. Prize.
2. JoYS Cup (permanent).

A NUMBER OF **CUPS AND PRIZES** WILL BE PRESENTED FOR EACH OF THE FOLLOWING:
The winning teams for:

1. **BEST PRESENTATION TO THE JURY**
2. **BEST POSTER**
3. **MOST GREEN PROJECT**
4. **BEST IDEA TO SOLVE A LOCAL PROBLEM**
5. **BEST TEAMWORK WITHIN THE TEAM**

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RULES & REGULATIONS

FOLLOWING RULES ARE DESIGNED TO ENSURE THAT JOYS PROGRAM IS CONDUCTED AS FAIR AND EFFICIENT AS POSSIBLE. VIOLATION OF ANY OF THE RULES BELOW MAY DISQUALIFY YOU FROM PARTICIPATION EVER.

- **GENERAL RULES FOR SUBMITTING ALL APPLICATIONS FOR PARTICIPATION**
- The closing date for receipt of participation applications is **October 15** of each year, and late applications will not be accepted. Submitting final projects on **May 1** of each year.
- Submitting an application for participation does not automatically guarantee acceptance of the project in the exhibition. A panel of evaluation judges will select the projects to apply to Amman, and its decisions are considered final.
- Students whose projects involve animal studies must ensure that such studies are carried out in compliance with laws and regulations.
- The advantage of the project lies in making use of any scientific tools and in students' understanding of its functions, not in the equipment itself.
- Before a project that is likely to contain potentially dangerous, pathogenic, toxic or allergens (animals/insects, plants or microbes) is undertaken/registered, a qualified expert should be consulted to advise on health and safety issues.
- Projects involving the use of chemicals should list in the project details form the materials to be used as part of the exhibition in Amman.
- It is expected that all or most of the project work will take place in the school, at home or in an outdoor environment. It is understood that some projects may involve visiting remote sites. Students may request advice or information about their project from sources outside their school, such as the Internet, government institutions, universities, institutes of technology, or other experts.

**But it is recommended that most students' work be conducted under the supervision of their relevant teachers with appropriate levels of intervention by their parents, guardians or adults responsible for them.
**When the experimental/research work is carried out by the students themselves or on their behalf in an external laboratory that is not from their school, (i.e. at a local university, hospital or industry) That work should then be clearly identified and acknowledged in the project report and present it. In addition, a letter of introduction from the external facility is required describing the extent of the assistance. Introduction and work done by students within the facility or done on behalf of students is included in the project report.

- When students misclassify a project, judges have the right to decide its appropriate rating.
- Projects may be submitted in any of the categories listed (see “Category Selection” section). Applications for individual student participation are permitted but group work is encouraged. Each team of male/female students may submit only one project. Teams will consist of a maximum of five people in the same year group (adults and juniors) from the same school.
- All team members should be fully engaged and should share the work and be aware of what is going on. The final work should reflect the coordinated efforts of all team members.
- In some cases, teams that are accepted into an event may need to change the number of people in their accepted project group, by increasing or decreasing the number of team participants within the rules limits.

** Such changes must be made in writing to the JoYS before **January 31**, and failure to do so will result in a judgment on the project with its original group that he entered to participate.

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PROJECTS' RULES

- **GENERAL RULES FOR ACCEPTED PROJECTS**

(Indicates only projects accepted for display at the event to be held in Amman).

- Some students whose project has been accepted for the exhibition may find themselves unable to complete it. It is very important that the organizers are immediately informed of this. Failure to inform the JoYS of the withdrawal in time results in an empty booth in the exhibition and causes disappointment to both other students and the general public. In the event that the project should be withdrawn, please inform us immediately through your instructor.

- Project content and material remain the property of exhibitors but may be used by JoYS for display or publication. In the event that students have a project with an element(s) that has commercial potential and the students seek to patent it, it is recommended that these students register such element(s) prior to the event.

- The judges reserve the right to withhold prizes if projects do not reach an acceptable standard.

- The decision of the judges in all matters relating to the award will be final. The initiative of tomorrow's scholars and other sponsors will not affect the judges' decisions.

- JoYS offer display pavilions of uniform size and design. The exhibition must be within the dimensions of the pavilion. Projects that do not comply with this system may lose their eligibility.

- Exhibitors will have to assemble their own projects in Amman within the allotted time.

- JoYS will not accept liability for damage to or loss of exhibits or personal belongings. Exhibitors are advised to remove valuable equipment from unattended suites.

- Exhibits must be safely designed and constructed and must not use as part of the parade any dangerous equipment, open flames, toxic, flammable, explosive or irritating chemicals, or any pathogenic, toxic or allergenic organism (animals/insects or plants). or microbes). Mammals, birds, amphibians or reptiles may not be displayed in exhibitions.

- Exhibitors are requested to refrain, where possible, from using the brand names (brand names) of companies/sponsors in their review. Reference to brands or companies should be limited to the participation report.

- Exhibitors must be present in their booths during all project judging rounds at the event in Amman.

- When presenting students, students will be expected to stay in their stands during the event to talk to visitors about their projects. They may not leave the exhibition before 6:00 pm on any day of the event without prior arrangement with the organizers of JoYS.

- Each model should write the team name on all equipment, charts and reports.

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REPORT TEMPLATE 1

- **GUIDELINES FOR WRITING YOUR PROJECT REPORT**

- **GENERAL INFORMATION**

- Project Code **ONLY**

- **TITLE PAGE**

The page must contain the following **ONLY**:

- Project Title
- Project Category

- **DECLARATION**

The following statement must be included here as proof that the project is original and actually the work of the students.

we acknowledge that;

- This project is our original work.
- This project is not a reproduction of any other published or exhibited work from any other source, local or international.
- The results presented here were obtained from experiments, research, or experiments we conducted ourselves.
- This is the first time that these results have been presented to the exhibition of JoYS, and the research has not been previously shared among any other competitions to be judged.

- **ACKNOWLEDGMENT**

Here, students should praise and thank everyone who helped them make their project a success. It must be a complete paragraph. **WITHOUT MENTIONING SPECIFIC NAMES**

- **CONTENT LIST**

The table of contents must be well updated and numbered correctly before the project report is submitted.

- **SUMMERY OF PROJECT**

The abstract should be a paragraph of 150 to 250 words, with a single space in Times New Roman font, and should prove to the jury with a quick overview of the project.

The abstract should begin with a brief but accurate statement of the problem or topic, followed by a description of the research methodology and design, the main findings, and the conclusions reached. It should contain the most important keywords that refer to the method and content.

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REPORT TEMPLATE 2

CHAPTER 1: INTRODUCTION

(divided into the following subsections)

BASIC INFORMATION

This chapter should include both the introduction and previous studies on the topic. In this section students should strive to:

1. Explain the importance of the topic, including a problem statement.
2. Provide a brief background on who has been studying this field.
3. Explain why doing this work was important or who cares about it and why?
4. Explain the importance of their work in the context of research, technology, science, and social context.
5. Mention relevant previous/baseline study information with relevant citations which should be linked to the reference list at the end.

JUSTIFICATIONS FOR THE STUDY

In this section, students should seek to answer the following questions:

1. What research gaps still exist in this area.
2. What problems are still encountered in this area.
3. What previous methods have been tried to solve this problem.
4. What research gap will the study fill?
5. How will this work affect society?

RESEARCH QUESTION(S)

1. Students in this section must do the following:
2. State the main question(s) they are trying to answer.
3. Make sure to use short and specific sentences to describe what they will accomplish in this project.
4. State no more than three research questions.

OBJECTIVE(S)

In this section, students should use the research question(s) listed above to develop the objective(s) that correspond to each question.

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REPORT TEMPLATE 3

CHAPTER 2: MATERIALS AND METHODOLOGY

Students in this section must:

- Provide a description in detail of the materials/reagents used in the experiment.
- Provide a detailed description of the methodology that was used, and the protocols
- The minute that was followed including the materials/reagents that were used.

If students keep a note/research book/lab book/workbook where all observations have been recorded, this evidence should be included in the project report, in the form of photographs, in a form that can be placed in the appendix. The memo/research book/laboratory book/workbook may be submitted as part of the guide during the experiment.

ANY QUESTIONNAIRE OR INTERVIEWS USED TO COLLECT INFORMATION SHOULD BE INCLUDED IN THE APPENDIX.

CHAPTER 3: RESULTS

- This chapter should identify the main findings drawn from the students' experiences.
- The results should have an accurate description of what was obtained and not what the student envisioned. The results should be interpreted in the form of graphs, tables and other figures used to describe the results.
- Include images and results to support your observations and findings.

CHAPTER 4: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Students should give a brief discussion of the results obtained. Did they get the desired results? Were the numbers higher or lower than expected? Are these results comparable to what other researchers have obtained? What conclusions can students reach? What recommendations can they give.

For example, should more testing be done? What limitations did they encounter? Should technology/research be popularized? Should government/industry make specific recommendations?

Students should finish with a conclusion and any recommendations they have for the project.

CHAPTER 5: LIST OF REFERENCES

- All references cited in the work should be listed alphabetically in this chapter.
- The APA format system must be used in the reference list.

Use this link to get more information: https://www.mendeley.com/guides/apa-citation-guide

Students should ensure that all websites/resources/publications where data/information was retrieved in this chapter are included.

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POSTER TEMPLATE

- **The colors should be inspired by the colors of the Jordanian flag, and font size for titles does not exceed 150, and for texts: 80, and in Times New Roman or Calibri fonts.**
- **Dimensions: 100-140 centimeters wide, and 70-100 centimeters height.**

- IT MUST INITIALLY CONTAIN:

1. **Project Title.**
2. **School Name.**
3. **Name of the participating students.**

- THE POSTER CONTAINS 5 PARTS:

- **PROBLEM:**

Contains the main question that the research or project answers.

- **INTRODUCTION:**

The introduction is a paragraph not exceeding 200 words that summarizes the process of undertaking the project.

- **TOOLS AND EQUIPMENT:**

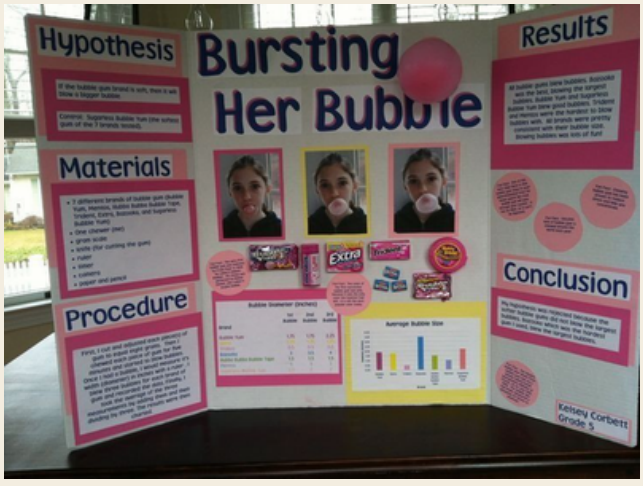
Make sure to use short and specific sentences to describe tools and equipment during the project.

- **RESULTS:**

Mention the results developed by the students that correspond to the questions that were answered in the implementation phase of the project.

- **STRATEGY:**
- Mention the set of plans, methods and approaches that have been followed in order to achieve the goals that have been achieved.
- Benefit to society:
- Explain the importance of their work, whether research or project, to the community and its importance to the field to which the research belongs or project.

Example



BEST OF LUCK TO EVERYONE WHILLE WORKING WITH JOYS INITIATIVE

GOOD LUCK!

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