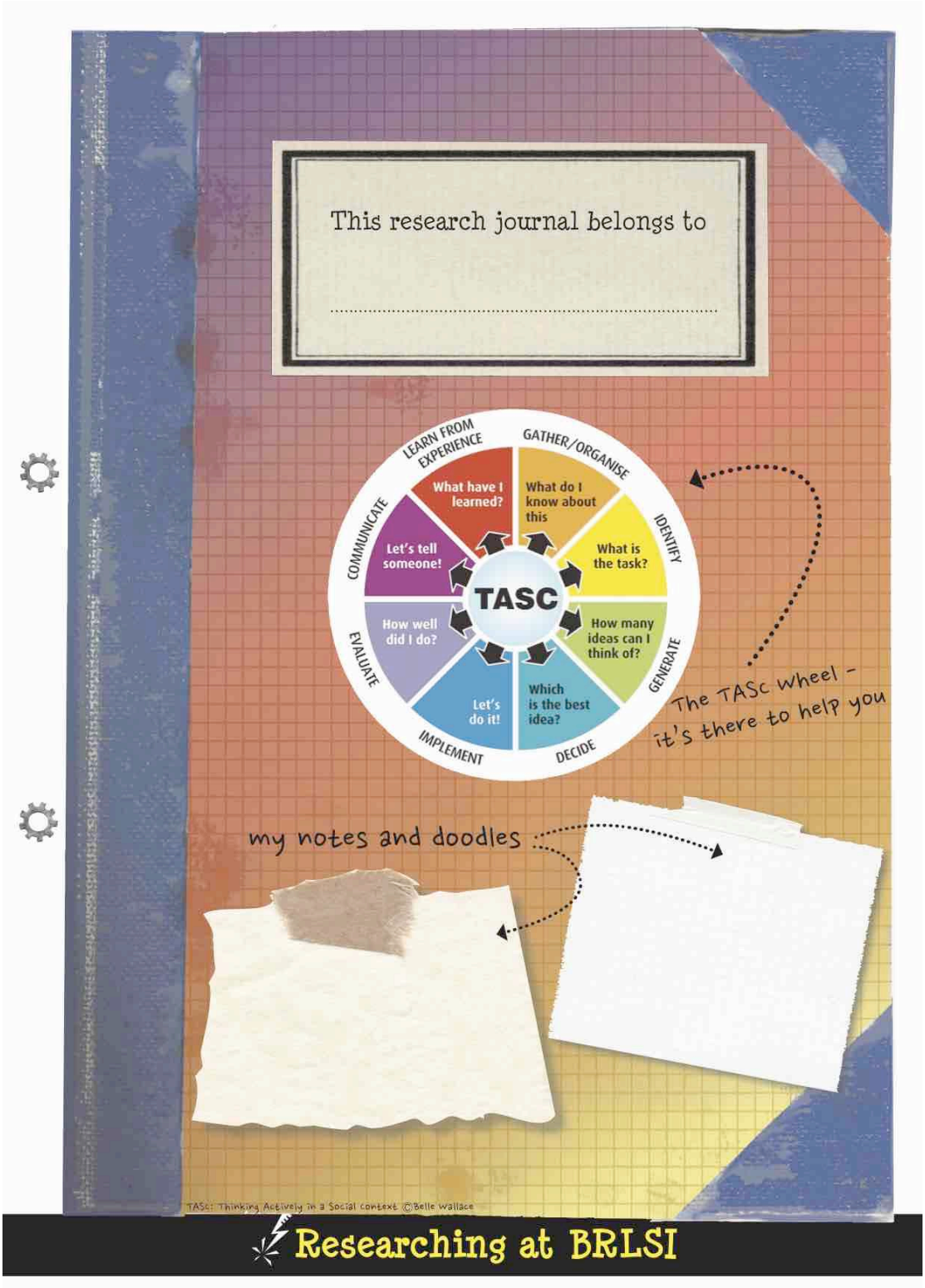
## Appendices

## 1. Research Portfolio: cover and some sheets



# How to be a scientist

**As a scientist you are often trying to understand WHY something happens and HOW. You test your ideas and share what you have learned with other people.**

Scientists are like artists, engineers and other creative learners with all sorts of interests.

They record their observations, questions, ideas, learning and creative thoughts.

Sometimes they write carefully, record measurements and make very carefully drawings.


**Scientists use their recording to help them remember things and notice something they may have missed before.**

**What to record and where to start?**

**Here are pages with a few ideas to get you going. Keep them in a ringbinder so it is easy to add pages and change them around.**

**You can begin on any page you fancy, go backwards forwards, revisit pages, add pages in and cut pages out.**

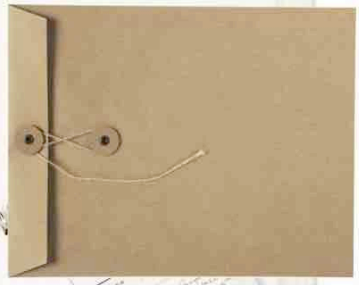
**Put the date and anything that will help you remember what you were thinking, observing, learning... for when you look at it later.**

At the top of the next few pages there is an arrow to a place on the TASC wheel. You can use this when you want to organise your thoughts, observations and investigations.

The TASC wheel will help you use a 'scientific method' to investigate what you are interested in and improve your enquiry.

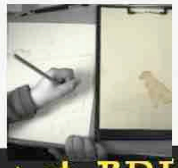
They also make rough notes, odd sketches and all sorts to help them remember things.

*In your research journal you can include doodles, sketches, photos, odd words, a bit of writing, a lot of writing, poems, videos, stories... whatever you want. You can stick things in, make pockets on special pages... use your imagination!*



## Be a scientist and start your research journal today

Make it fun, fantastic and a treasure chest of your knowledge, ideas, thoughts and experiments that helps feed your 'creative imagination'!



Most important - make it yours.

Scientists think about what they know and check they are right. They increase their knowledge by finding out what other people know. They don't just accept what they are told, they check it out!


Hmmmm... interesting! This is what I observed and learned today

I thought

I noticed

I felt

I know

I found out

I wondered

I imagined

Researching at BRLSI

# Scientists investigate questions to try to work out HOW and WHY things happen.

**Think Actively in A Social Context -**

Scientists think about what they want to investigate...

### LEARN FROM EXPERIENCE
Scientists reflect on what they have learned, for instance, about science, about being a scientist, about themselves as a learner and person, what interested them, what was important to them, what puzzled them, what they might like to explore next...

### GATHER AND ORGANISE
Scientists think about what they know and check they are right. They increase their knowledge by finding out what other people know. They don't just accept that they know or what they are told, they check it out!

### COMMUNICATE
Scientists talk with other people about their enquiry and they listen to what other people think about what they say. They discuss the ups the downs, the surprises and and what they have learned together.

### IDENTIFY
Scientists are curious noticing and identify questions to investigate such as: "Why does that happen?" "I wonder..."


### EVALUATE
Scientists use the results of their investigation to work out the best answer they can to their question, check out how reliable their answer is and what they might do another time and write a report to share

### GENERATE
Scientist use their imagination to devise ways of investigating their question

### IMPLEMENT
Scientists prepare their investigation by gathering equipment, deciding how to record their observations and then carefully putting their idea into practice

### DECIDE
Scientists chose one of their ideas and make it even better

TASC (Thinking Actively in A Social Context) has been developed by Belle Wallace.
For more information visit http://www.tascwheel.com/

## 2a An observation sheet

**BRLSI YOUNG SCIENCE RESEARCHERS 2014 – 2015**

**OBSERVATION SHEET**

**Please remember that ALL research findings need to be recorded carefully and in detail . It is important that all documents are dated.**

Name …… Time…… Date……

**This is what I am investigating**

……

……

……

**Where my research took place** (Name and description of location, e.g. Indoors, outdoors, laboratory, other……..

……

……

**The conditions were:** estimated temperature… Tick appropriate description, wet, damp, dry, dusty, light, dark, clean, dirty, contaminated (add other relevant descriptions……...

……

**I used this equipment** ……

……

……

**I used these materials**……..……...

……

……

**List of anything else I needed**……

……

……

**This is what I expected to happen** (The purpose of the experiment and the expected outcome)…..……

……

……

**This is what happened**.....

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.....

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**This is what I noticed.**.....

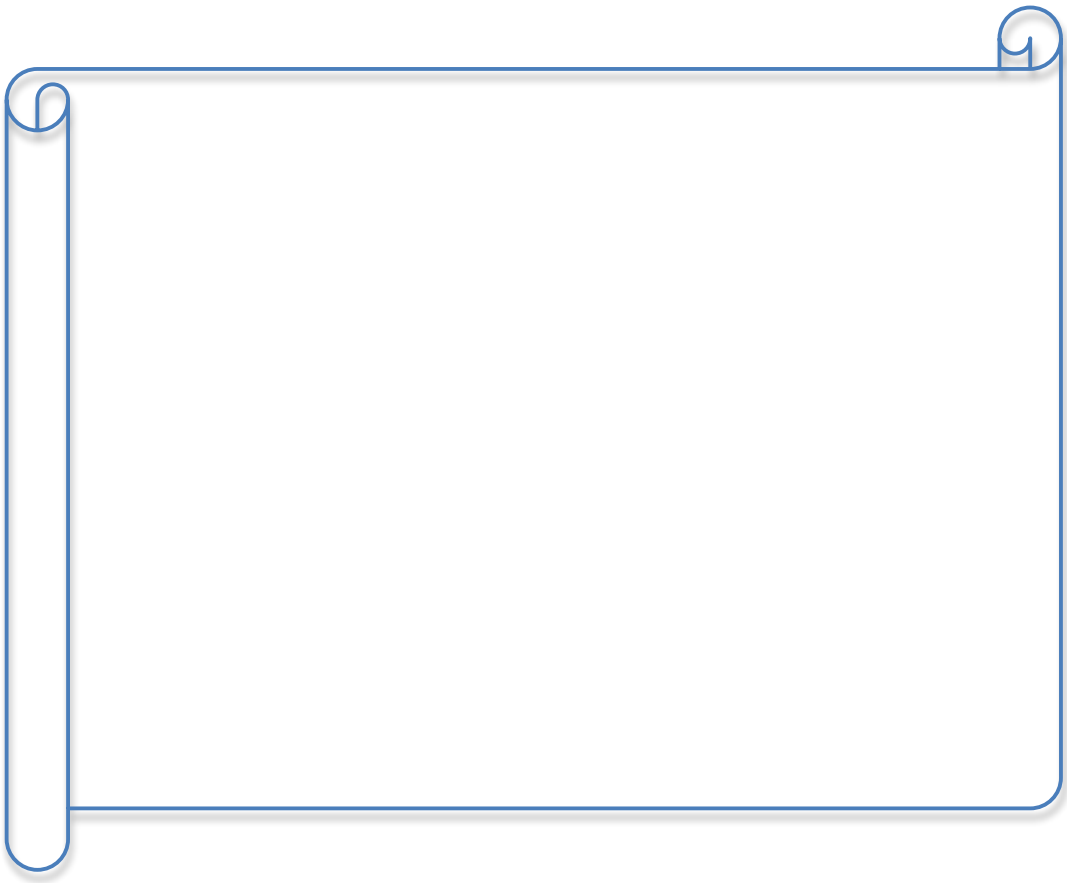
.....

.....

.....

.....

**Other things I observed**.....



**I think it happened because**……

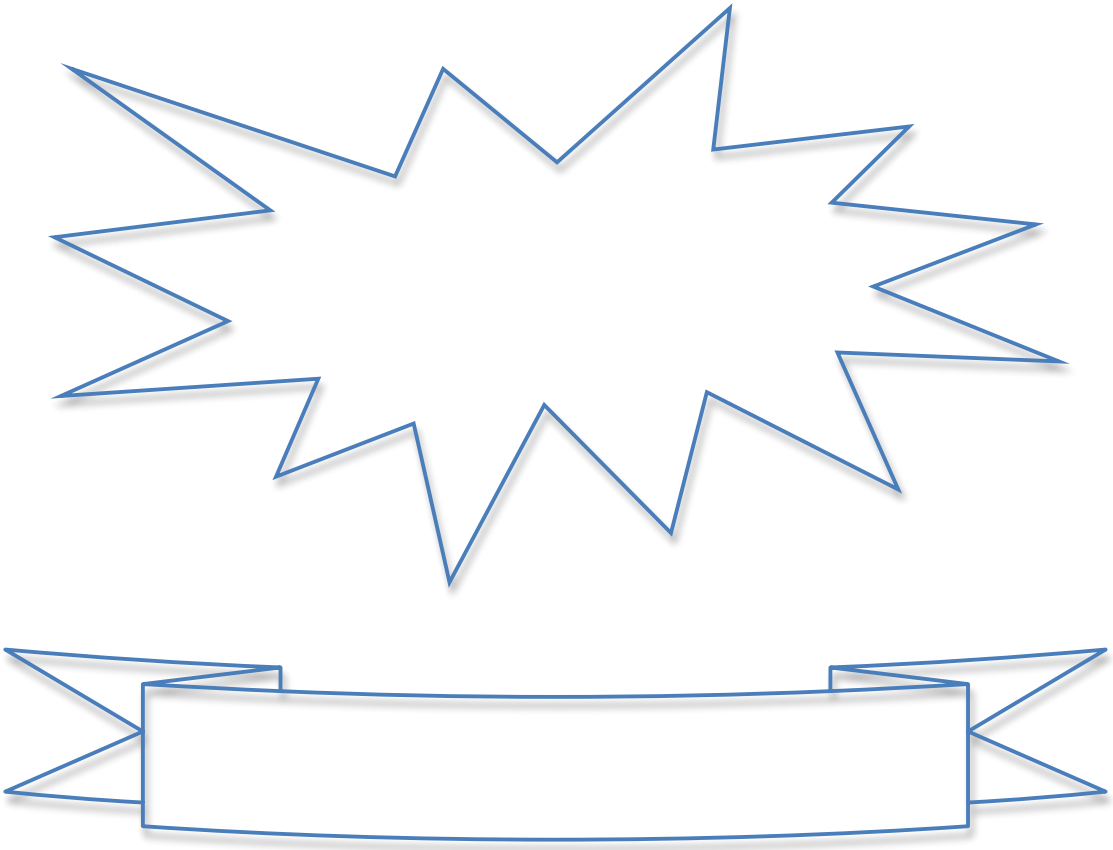
……

……

……

……

**Other interesting things I have discovered or thought about**……



**This is how I am going to make use of the information**……

……

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……

……

## 2b A review sheet

**BRLSI YOUNG SCIENCE RESEARCHERS 2014 – 2015**

**REVIEW SHEET**

**Please remember that all research activities must be reviewed so that as the research progresses, processes and procedures can be improved and the research itself be refined. It is important that all review documents are dated.**

Name …… Date……

**This is what I am investigating**

……

……

……

**I wondered**

BEFORE……

……

DURING……

……

AFTER……

……

……

……

**I felt**

BEFORE……

……

DURING……

……

AFTER……

……

……

……

**This is what I knew**
BEFORE…….

…….

…….

**This is what I know**
NOW……..

……

……

**I am sure that I know this because** ……

……..

……..

**I might be wrong because** ……

……..

……..

**These are the things I need to check**……

…….

……

**I will check by** ……

……

……

**This is what I have learned about myself** …….

……..……

…….

……

**This is what I have learned about researching**……..

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……

……

**These are things I would like to improve**……

……

**I think I will do this by** .....

.....

.....

**These are things that I need help with** .....

.....

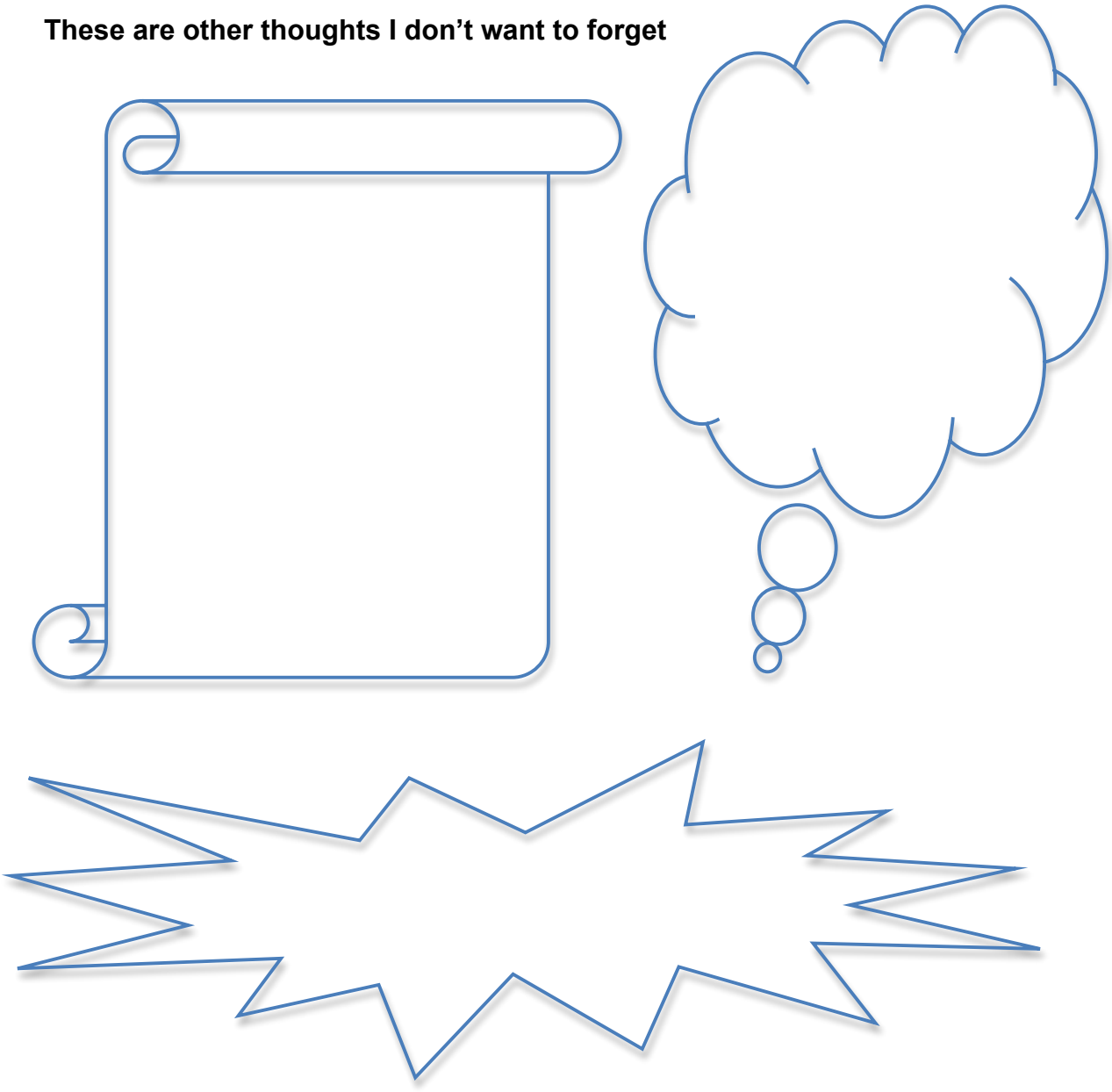
.....

**These are the ideas of how and from whom I will get help**.....

.....

.....

**These are other thoughts I don't want to forget**



## 2c A planning sheet

**BRLSI YOUNG SCIENCE RESEARCHERS 2014 – 2015**

**PLANNING SHEET**

**Please remember that all plans are flexible and are likely to be changed as the research progresses.**

**It is important that all documents are dated.** Date……

**This is what I am going to investigate during the next month**

……

……

**What I think I will find out is**

……

……

……

**I think I will find that because** ……

……

……

……

**This is what I need to get together:**

Equipment……

……

……

**Support** (who I am going to ask to help me and how I hope they will help e.g. supervisor, member/s of my research group, family, friends, teachers etc )

……

……

……

**Get email support by going to coolbookings@brlsi.org and head email BRLSI Young Science Researcher**

**These are all the different ways I think I could investigate:**

……

……

……

……

……

……

……

……

**This is how I am going to record my findings (tick):-** Use an observation sheet. Make my own notes. Make my own drawings. Make a list of results. Take photographs. Other (explain what these are)

……

……

……

……

**Places I need to visit:.**……..

……

……

**Important dates** e.g. next session, when to contact supervisor, completing draft report, presentation etc.

……

……

**As well as doing research I need to record HOW I did it.**

(The TASC wheel will help.)

I am going to record my own learning by using (Tick) Diary, Video, or explain other method(s) ……

……

I am going to present my findings by e.g. Report/essay, App. PowerPoint, Poster, Video, Magazine article……..

……

## 2di Young researcher's feedback sheet

### BRLSI Saturday Workshops

### CHALLENGING OPPORTUNITIES FOR ENTHUSIASTIC LEARNERS

**To Parents/Guardian. It is important that we know what you and your child think of the workshop and the project.**

✯ **Complete it with your child and then give it to the workshop volunteer. Thank you.**

**BRLSI Researcher**

Young researcher's name ----------

School ---------- Year Group ----------

**Parents/Guardian:** Do you think a project session like this is a good idea? Have you any suggestions on how the project could be improved? (You may want to add some comments about this particular session when you talk to your child)

**For young researcher to complete:**

Would you recommend this project session? YES ☐ NO ☐

How many points do you give the workshop? Circle a number.

Awful Great

0 1 2 3 4 5 6 7 8 9 10

☹ 😐 ☺

What did you like most?

What would you change?

Will you be coming to the next session? YES ☐ NO ☐

## 2dii Supervisor's feedback sheet

### BRLSI Saturday Workshops

### CHALLENGING OPPORTUNITIES FOR ENTHUSIASTIC LEARNERS

**To Supervisor It is important that we know what you think of the session and the project. We need the ensure that you are satisfied with all aspects as well as the young people you are mentoring.**

☆ **Complete it and then give it to the BRLSI volunteer. Thank you.**

### BRLSI Researcher Project

Would you recommend this project to other students? YES ☐ NO ☐

How many points do you give this specific session? Circle a number.

Awful Great

0 1 2 3 4 5 6 7 8 9 10

How would you rate the facilities?

Awful Great

0 1 2 3 4 5 6 7 8 9 10

What did you like most?

What would you change?

What suggestions do you have for improvement that would be helpful to the young researchers?

What suggestions do you have for improvement that would be helpful to you

**BRLSI YOUNG SCIENCE RESEARCHERS 2014 – 2015**

**PLANNING SHEET (second session)**

**Please remember that all plans are flexible and are likely to be changed as the research progresses. It is important that all documents are dated.**

Name……. Date……

**What I am going to investigate this month is** ……

……

……

……

**What I think I will find out is**

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**I think I will find this because**

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**What I need to get together is**:

Equipment……

……

……

Support (who I am going to ask to help me, write name and how they will help)

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……

……

**I need to observe and record findings carefully** to make sure my notes are objective, clear, simple to understand by other people and not ambiguous.

I will do this by……

……

……

**These are all the different ways I will investigate during the coming month:**

……

……

……

……

……

**This is how I am going to record my findings (circle all that apply):**

Use an observation sheet; Make my own notes; Make my own drawings. Make a list of results; Take photographs. Other (explain)

……

……

……

**Places I need to visit:**

……

……

……

……

**Important date (**e.g. I am going to present my findings on (write in date)

……

……

Method of presentation (circle all that apply) Report/essay. PowerPoint, Poster, Video, Diagrams. Other (explain clearly how)

……..

……..

……

……..

**As well as doing research I need to record HOW I did it.**

(The TASC wheel will help.)

I am going to record my own learning by using (circle all that apply): Diary, Chart, Video, Other (explain methods)

……..

…….

……..

**Please make sure that everything thing you do is recorded and INSERTED in your portfolio in a sensible order**

## 3 Example of an outline schedule

### Session outline for introductory session

12pm All volunteers arrive to meet and plan the afternoon. (The Duncan Room might have the 'tail' end of the BRLSI coffee morning)

1pm Children arrive and H&S/ introduction with the other BRLSI workshops in Elwin Room
1:05 Group meets in Duncan room. Paul S and Marie greet.
WHO? Introduction exercise. 2 circles facing each other, each person has one minute to introduce self then circle moves round and repeats approx 25 mins.
WHAT? Then PhD students move to one or other of 5 tables and children guided (to avoid friendship groupings) to go to a table, students introduce their subject area topic, after 5 minutes children change tables. approx 25 minutes.
FIND OUT MORE Children then move to a table, which they think they would like to find out more about. Maybe a practical session to introduce the idea/topic 25 minutes. Issue them with the proposed portfolio and the planning sheet.

COMFORT BREAK approx 2:15pm (very important to keep to this so that all workshops have break together)

Children return to their 'team/topic table with their PhD student
WHEN. Paul S (maybe power point) of the timetable calendar 5 minutes. Always the second Saturday of each month. Interim research findings to be provided to University of Bath Spa Team Jnary 2015 and then update each month. All the research MUST be completed by end of April. Presentation May 9th 2015. Possible further public presentation late May or June 13th) (Children record all dates on planning sheet).
HOW RECORD RESEARCH RESULTS? Students and children in their groups (maybe use the BRLSI observation sheet and/or University PhD methodology outline, maybe a practical example) discuss and suggest for 10 minutes then each group 1 minute feedback. 15 minutes in all
HOW RECORD LEARNING? Marie on the use of the BRLSI portfolio and TASC Wheel. What other methods of recording? Use portfolios to begin process of recording. 15 minutes. Plan a 1 minute interview on video to answer questions. (What is your possible topic? What do you already know about your topic? What do you want to find out? What do you hope to do next? )
VIDEO RECORDING of each participant (including PhD students and programme supervisors) 1 minute statement. 20 minutes
HOW SUPPORT Marie on the use of the website. Example of how to do it. 10 minutes. During the time between monthly BRLSI session children can ask questions at coolbookings@brlsi.org . Title the email BRLSI Young Science Researcher.
CAN FAMILIES HELP/SUPPORT? Groups discuss feasibility and appropriateness. 5 minutes
PLANNING AHEAD - Complete as best they can the planning sheet 10 minutes. Agree the format for each future session (1. Review what has been done. 2. What needs to be done. 3.What skills need to be learned/practised. 4. What support/equipment is needed over the next month. 5. Any suggestions for next time.
EVALUATION - HOW WAS IT FOR YOU? 10 minutes
4:00pm End.

## 4 Rubric for evaluating the real academic posters

| Marker's Name | | Author's Name | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Title** | Boring | 0 | | | | | | |
| | Key Hypothesis or Take-Home Message | 1 | | | | | | |
| | Eye Catching | 2 | | | | | | |
| **Author / Supervisor Identification** | None | 0 | | | | | | |
| | Partial | 1 | | | | | | |
| | Complete | 2 | | | | | | |
| **Overall Appearance** | Cluttered / Sloppy | 0 | | | | | | |
| | Pleasant | 1 | | | | | | |
| | very pleasing | 2 | | | | | | |
| **White Space** | Very Little | 0 | | | | | | |
| | OK | 1 | | | | | | |
| | Lots | 2 | | | | | | |
| **Colour** | Very Little / None | 0 | | | | | | |
| | OK | 1 | | | | | | |
| | Harmonious | 2 | | | | | | |
| **Text/Graphics Balance** | Too Much / Not Enough Text | 0 | | | | | | |
| | Unbalanced | 1 | | | | | | |
| | Balanced | 2 | | | | | | |
| **Text Size** | Too Small | 0 | | | | | | |
| | Easy to Read | 1 | | | | | | |
| | Very Easy to Read | 2 | | | | | | |
| **Organisation and Flow** | Cannot Figure Out | 0 | | | | | | |
| | Implicit | 1 | | | | | | |
| | Explicit | 2 | | | | | | |
| **Research Objectives** | Can't find | 0 | | | | | | |
| | Present | 1 | | | | | | |
| | Explicit | 2 | | | | | | |
| **Main Results** | Can't Find | 0 | | | | | | |
| | Present | 1 | | | | | | |
| | Clearly Represented and Explicit | 2 | | | | | | |
| **Summary** | Absent | 0 | | | | | | |
| | Present | 1 | | | | | | |
| | Clear and Succinct | 2 | | | | | | |
| **Total** | | | | | | | | |