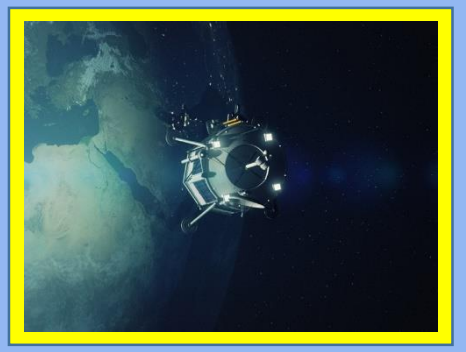
LUNAR MISSION ONE

An inspirational space mission we can all be part of!

A truly global programme, involving professional organisations and private citizens from every corner of our planet.

What is Lunar Mission One?



Lunar Mission One is the most inspirational Moon project since the Apollo landings.

It will perform a world-leading investigation into the science and exploration of the solar system
- and it will leave a permanent record of life as we know it, buried at the Moon's south pole.

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Lunar Mission One Scientific and Technological Aims

The mission aims to:

- send an international unmanned robotic spacecraft to land at the south pole of the Moon (circa 2024)
- drill down to between 20 and 100m to collect and analyse lunar rock
- assess the south pole's suitability for a future permanently manned lunar base
- investigate the Moon's potential for deep space radio astronomy
- place an archive of 'Life on Earth' below the Moon's surface

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Lunar Mission One Educational Aims

The mission aims to:

- inspire, through educational engagement, curious young minds around the globe
- act as a stimulus for learning
- provide the opportunity to think critically and work collaboratively
- provide the opportunity for individual students to form a retrievable record of their school and project work
- act as an exciting focal point in the lives of students

How will the educational aims be met?

- We will be working with schools and educational institutions around the World to develop a large segment of the ‘Life on Earth’ archive.
- Students will be invited to make contributions to the records.
- Educational activities will be designed to promote their understanding of their local culture, history and geography, and to engage with the science and technology of the space mission.

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The Pilot Programme

- The Pilot Programme is expected to last between 3 and 5 years.
- Selected Pilot schools and colleges will have the opportunity to test a broad range of activities which will act as exemplar work guiding millions of students around the globe.
- Pilot activities will be selected to cover:
  - All of the World's many and varied cultures
  - All abilities (to ensure full access to every student contributor)
  - All ages (4 to 64 years and beyond)
  - All subject areas

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The Life on Earth Public Archive

The Ultimate Time Capsule

We, the explorers of the future,
want to know all about your world today.

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What is Required for the Pilot Life on Earth Archive

- Schools / colleges or groups select activities that would suit participation in the LM1 public archive.
- Students complete the activities and digitally document their work.
- Schools / colleges or groups submit their student's digitally recorded work for inclusion in the 'Life on Earth' archive.

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In your local area, we want to know:

- What is the landscape like where you live?
- What type of wildlife lives in your local area?
- What local customs and beliefs do you have?
- What type of buildings do you live in?
- What type of industry operates in your area?
- What type of farming operates in your area?
- How many and what type of people live near to you?
- How do you travel around?
- What is a typical work and leisure day like for you?

Life on Earth
Public Archive
Research Questions

See the Lunar Mission One website for many more things that we would like to know about you and your local area.

Selecting Activities for the Pilot Life on Earth Archive

- Please consider **age appropriate** topics that you already undertake that could provide answers to some of the Life on Earth archive research questions.

- Complete your activities (as you normally do) and then digitally record your students findings.

Alternatively

- Choose an interesting ‘local area’ topic to investigate. Develop your own **age appropriate** activity and digitally record your results for inclusion in the archive.

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Environmental Research Examples

4 to 6 years

- A group of students collect examples of local plant life and foliage. They agree on their own classifications (according to colour, shape, size etc.) The groups build a class display. The teacher (adult leader) photographs the display as a contribution to the archive.

14 to 16 years

- A group of students undertake a field trip to study their local coastline. They record the geology of the coast plus various types of coastal erosion and its causes. Students develop multimedia scientific reports and these are submitted for inclusion in the archive.

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Your Geographical Area of Coverage

- We are **primarily** interested to know about your **local area** (some schools and colleges may consider this to be their catchment area).

HOWEVER

- We also ask that you consider areas that are unlikely to be covered by others, for example:
  - Your institution sits in, or near, an area of very low population density (in a jungle / near a desert / in a mountainous region etc.)

Science, Technology, Engineering and Mathematics (S.T.E.M.)

- In addition to ‘Life on Earth’ archive contributions; schools, colleges and groups are invited to research, develop and submit STEM based projects.
- Those that relate to Earth and/or Planetary science, Astrobiology, Astrophysics or the ‘Lunar Mission One’ mission itself are encouraged.

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Project Science and Technology Opportunities

- Using Lunar Mission One as a stimulus for learning, Pilot institutions are invited to develop and submit science and technology based projects.

- These could include investigations and proposals that cover:
  - The technology required to build the digital archive
  - The spacecraft robotics and drilling technology
  - LM1 launch and precision landing systems
  - The science and challenges presented by Solar System exploration

- Pilot institutions may decide to cover these STEM based topics as part of their normal curriculum, or more specifically, during the annual World Space Week event.

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STEM and Mission Related Student Project Examples

7 to 11 years – Engineering, Design & Technology and Science (STEM Engineering – Topic Label)

- A group of students research and study the soft landing techniques that have been employed on previous planetary space missions. Working in small groups, the students design an enclosure to protect the LM1 scientific payload from impact damage at touch-down. The students junk-model their enclosure and prove its ability to protect an egg, when dropped from a set height.

16 to 18 years – Economics, Law and Politics (STEM General – Topic Label)

- College students, studying Economics, Law and / or Politics, research and study historical and current space treaties and laws. They focus their attention on the laws and treaties concerning the usage of the Earth's moon. Students develop papers and a presentation to explain the potential impacts of space law on Lunar Mission One.

18 to 21 years (First Degree) – Computer Science and Electrical Engineering (STEM Technology – Topic Label)

- Students review the storage capacity and longevity requirements of the Lunar Mission One public and private digital archives. The students then investigate the capability of currently available and proposed data storage hardware. Students present their research papers for consideration by the LM1 Science and Technology teams and for storage in the LM1 digital archive.

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World Space Week (4th to 10th October 2016)

- Lunar Mission One Pilot schools and colleges are invited to take an active part in this year's World Space Week (WSW).
- To take part, we ask that you:
  - Select LM1 World Space Week (WSW) activities (see www.lunarmissionone.com) or develop your own.
  - Students complete these activities during WSW October 2016.
  - Digitally document WSW work for submission to the archive.
  - Take part in a global (online) celebration of your student's WSW work.

www.worldspaceweek.org
World Space Week
The largest public space event on Earth

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Recording Your Work – digital options

- Microsoft Office documents (Word / Excel / PowerPoint)
- JPEG digital images

Including: images of the local area, student's work, groups displays etc.

- Digitally recorded sound files (mp3 / wav)

Including: local music, natural sounds, interviews etc.

- Digitally recorded video (mp4)
- PDF documents (to support scanned text and images)

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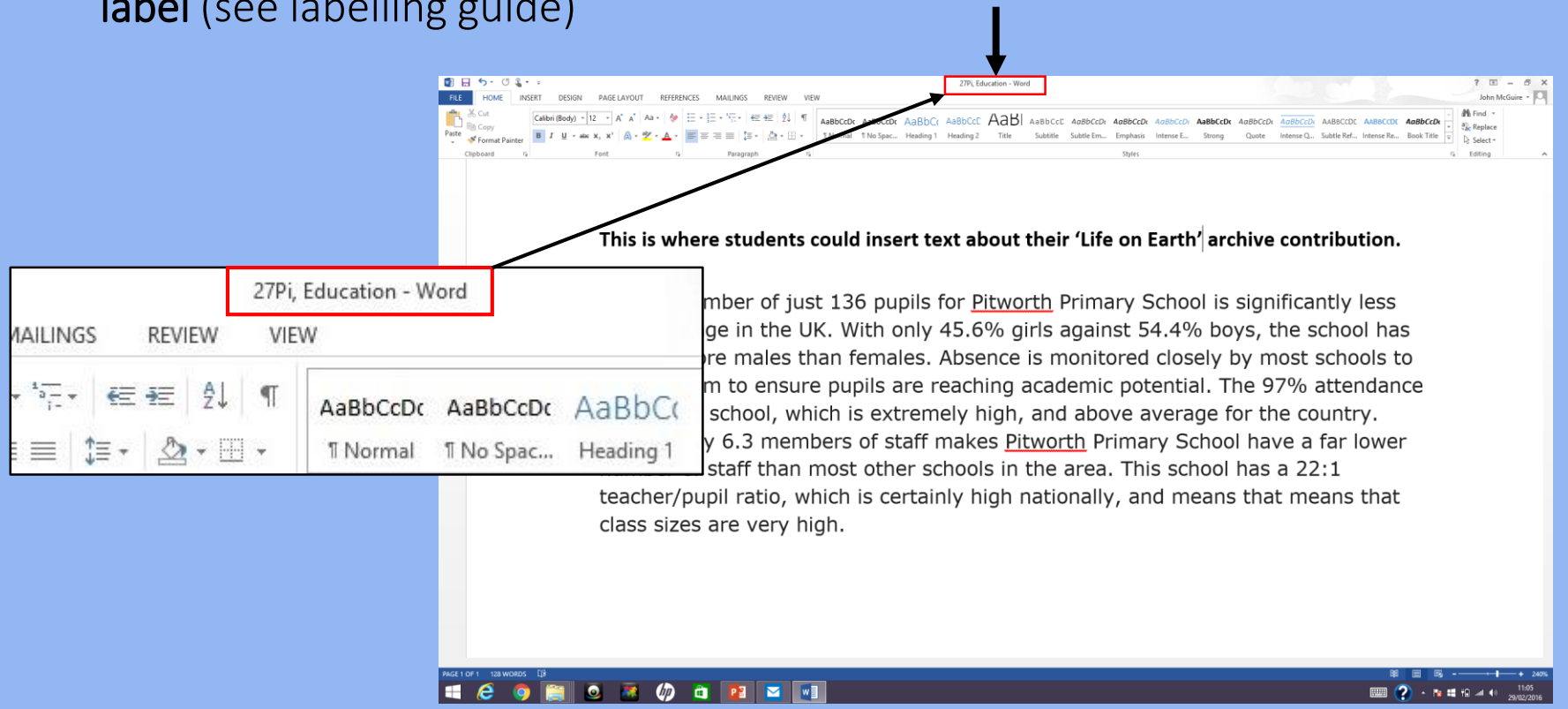
How to save Microsoft Word Documents

- When saving your Microsoft word document, name your file by **using** your unique School/College or Group identification label (**ID label**) and a ‘Life on Earth’ archive **Topic label** (see labelling guide)



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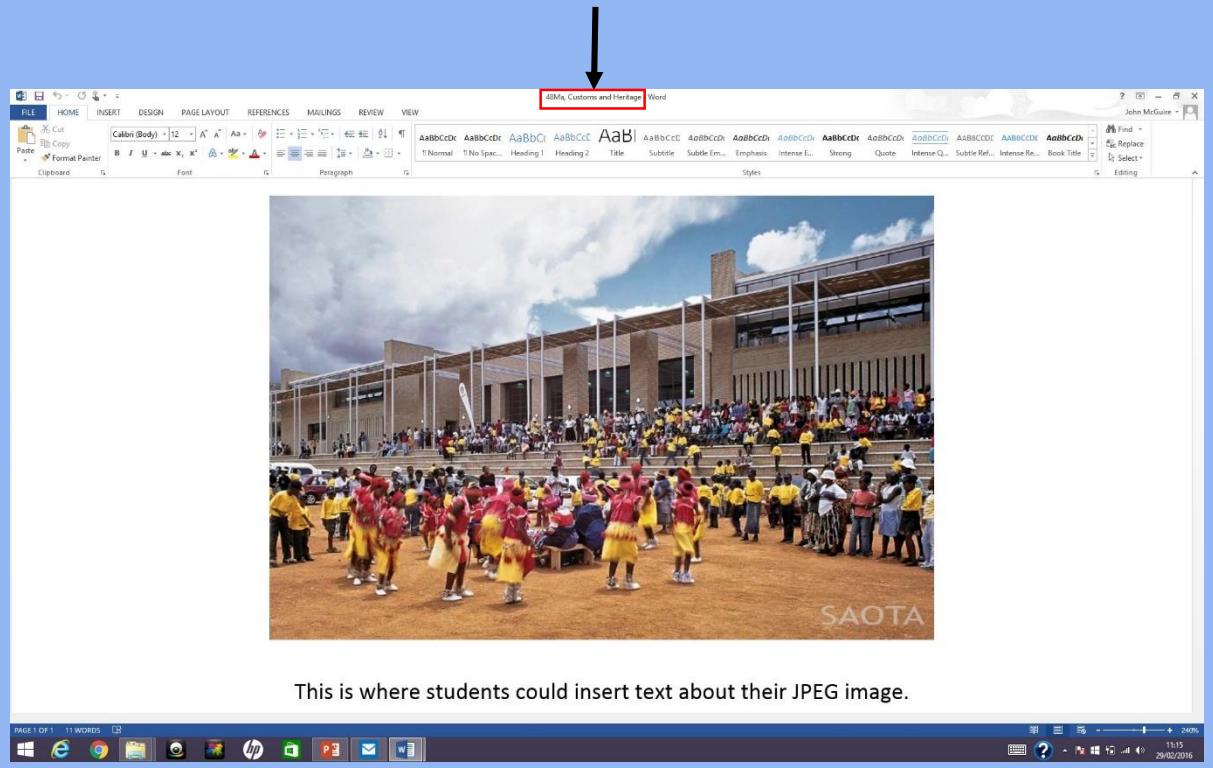
How to save JPEG Images

Including: images of the local area, student's work, groups displays etc.

- Copy/paste the JPEG image into a Microsoft Word document and add supporting text
- Name or label the Microsoft Word document (see labelling guide)



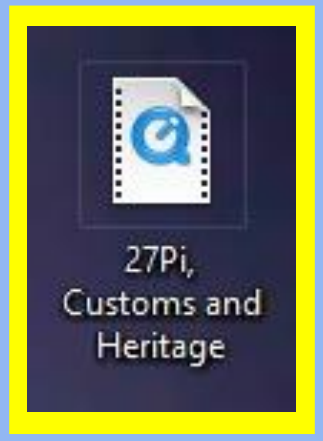
How to save sound and video files

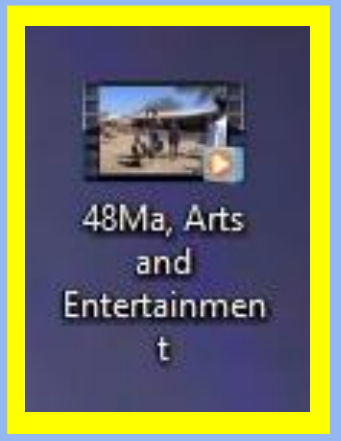
Digitally recorded sound files (mp3 / wav)

Including: local music, natural sounds, interviews etc.

Digitally recorded video (mp4)

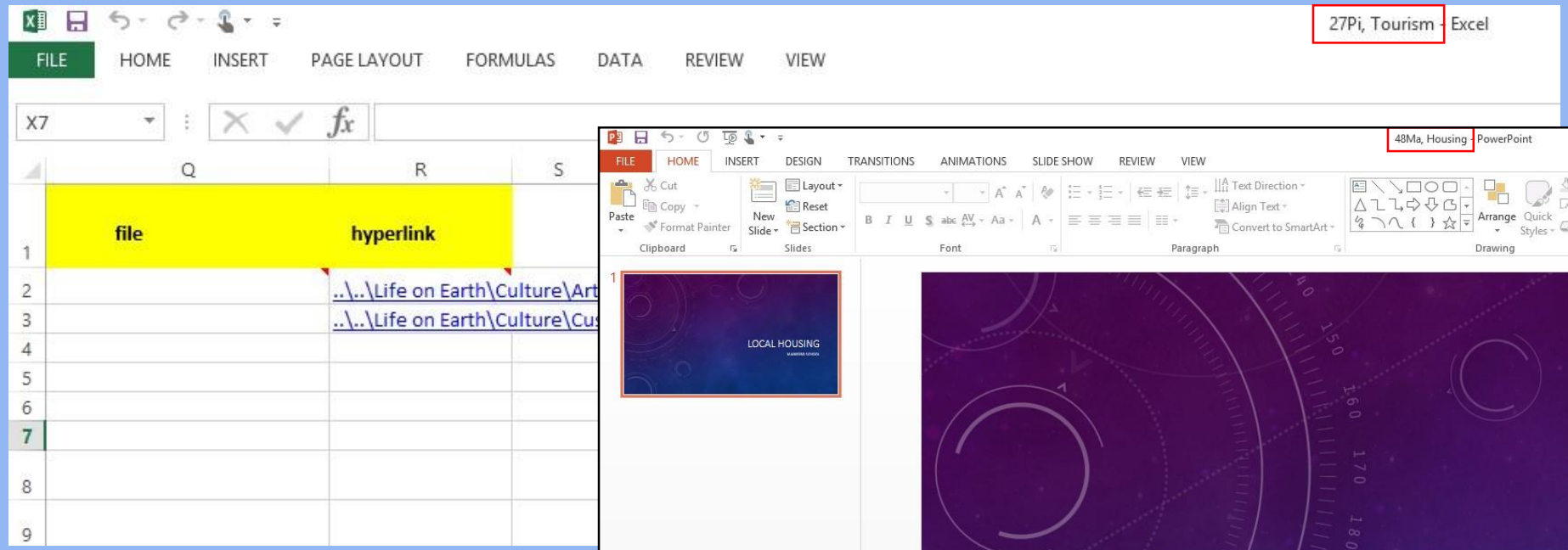
- When producing sound or video clips, please ensure that you include a recorded explanation of the contents, as part of the file.
- Fully name/label the sound or video file (see labelling guide)

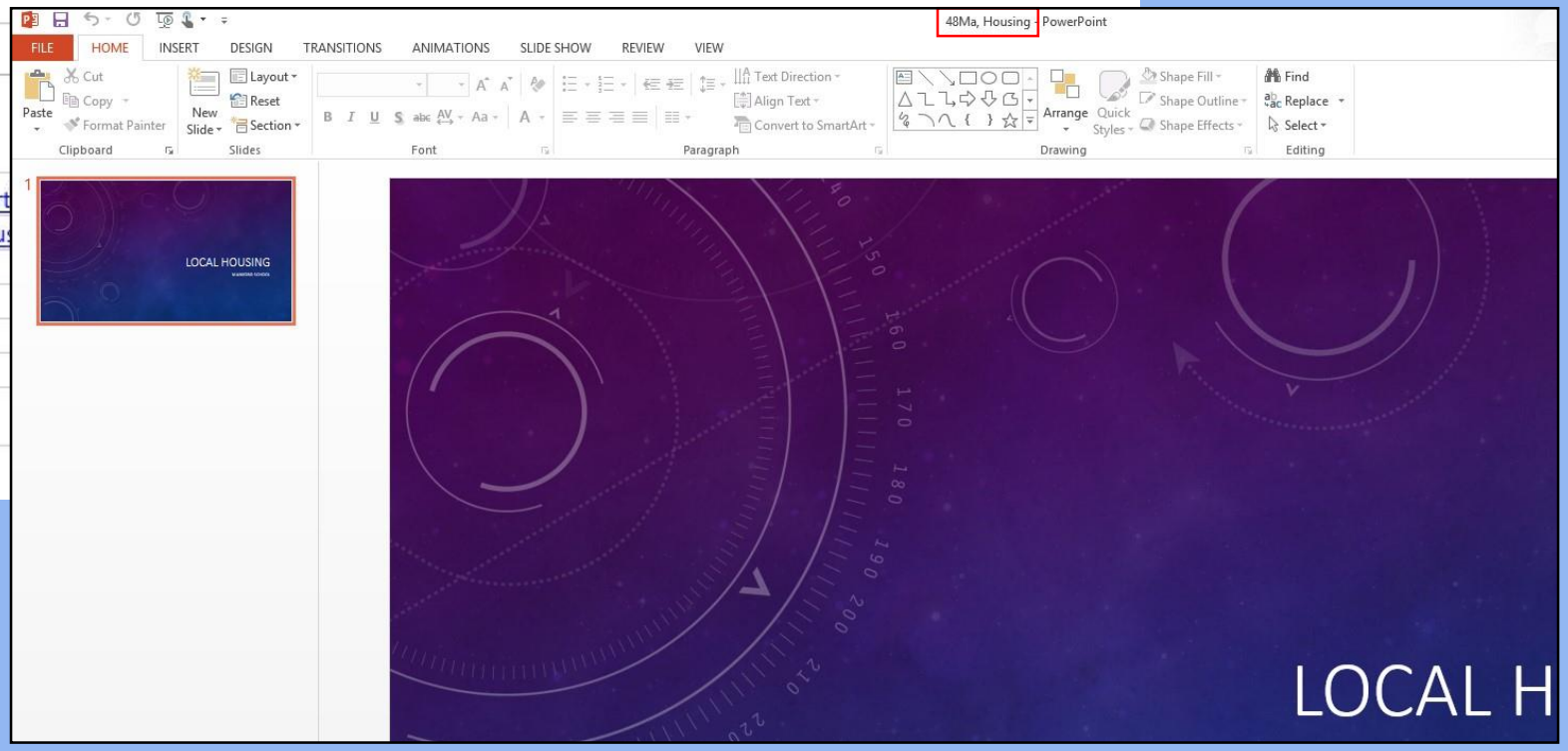




How to save PowerPoint and Excel files

- Fully name/label the Microsoft PowerPoint or Excel document (see labelling guide)



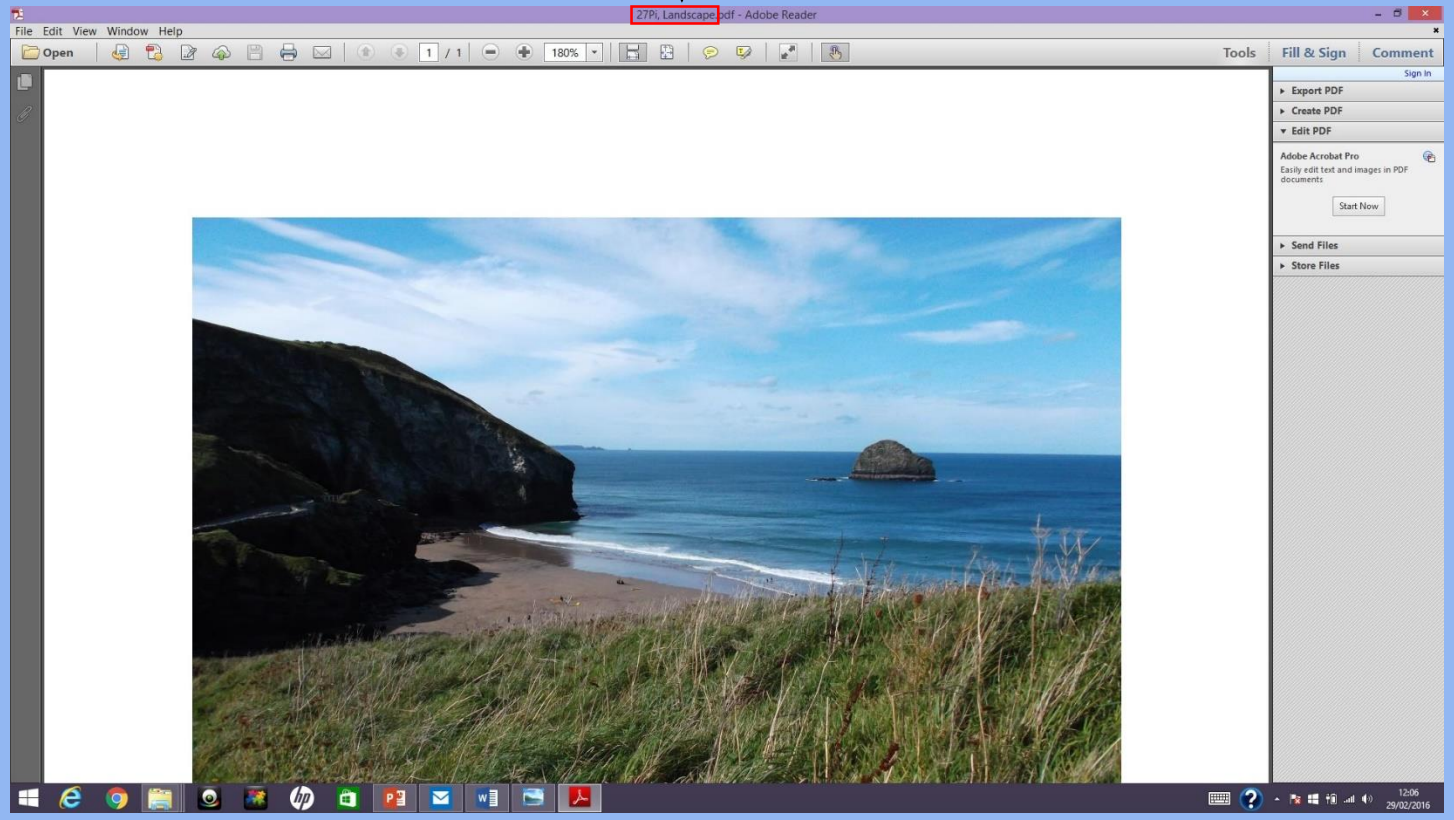


DO NOT save as a PDF file. Playback functionality will be lost.

How to save PDF Documents

Scanned images and documents are often saved in a PDF format

- When saving your PDF document, name your file by **using** your unique School/College or Group identification label (**ID label**) and a ‘Life on Earth’ archive **Topic label** (see labelling guide)



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Naming or Labelling Your Work

- An accurate labelling convention must be followed to allow your work to be stored and retrieved from the Life on Earth digital archive.

The document label **includes**:

- A unique School/College or group identification label (**ID label**)

Pilot schools, colleges and groups will shortly be invited to register their details with the Lunar Mission One data management team. Your ID label will be issued to you on completion of this process.

- A 'Life on Earth' archive **TOPIC label**

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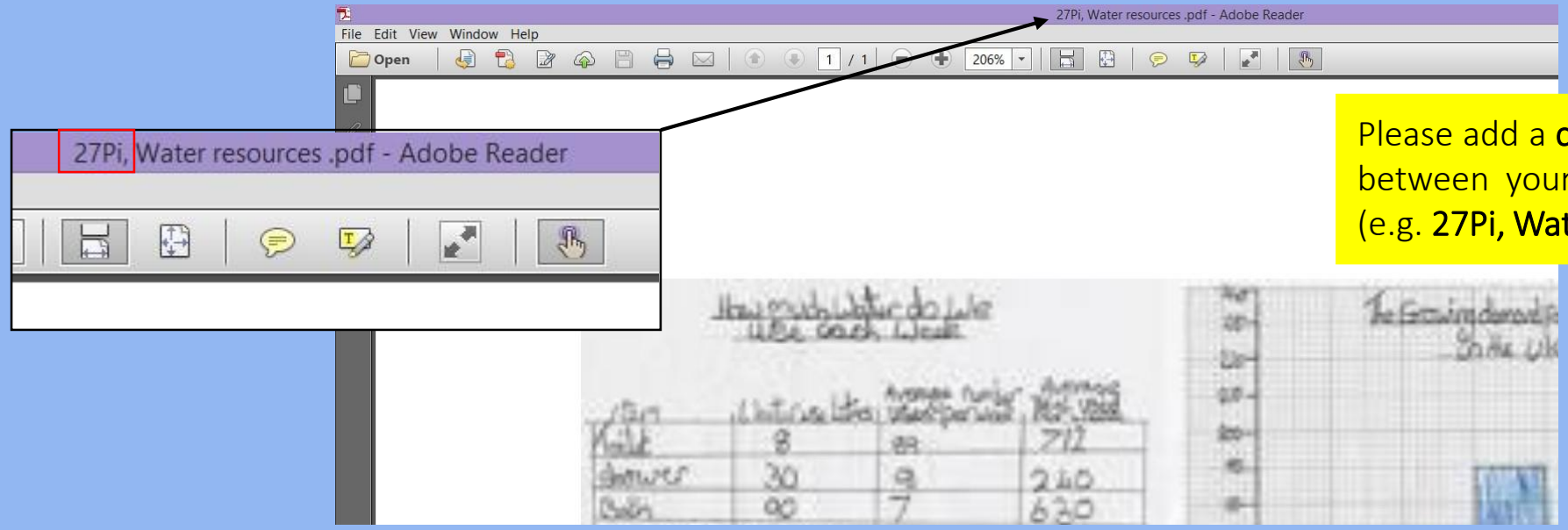
School/college or Group Identification label

1. Your ID label will consist of one or two numbers, plus the first two letters of your registered school/college or group name. In the example (below) Pitworth Primary School has been issued with the unique ID label 27Pi.

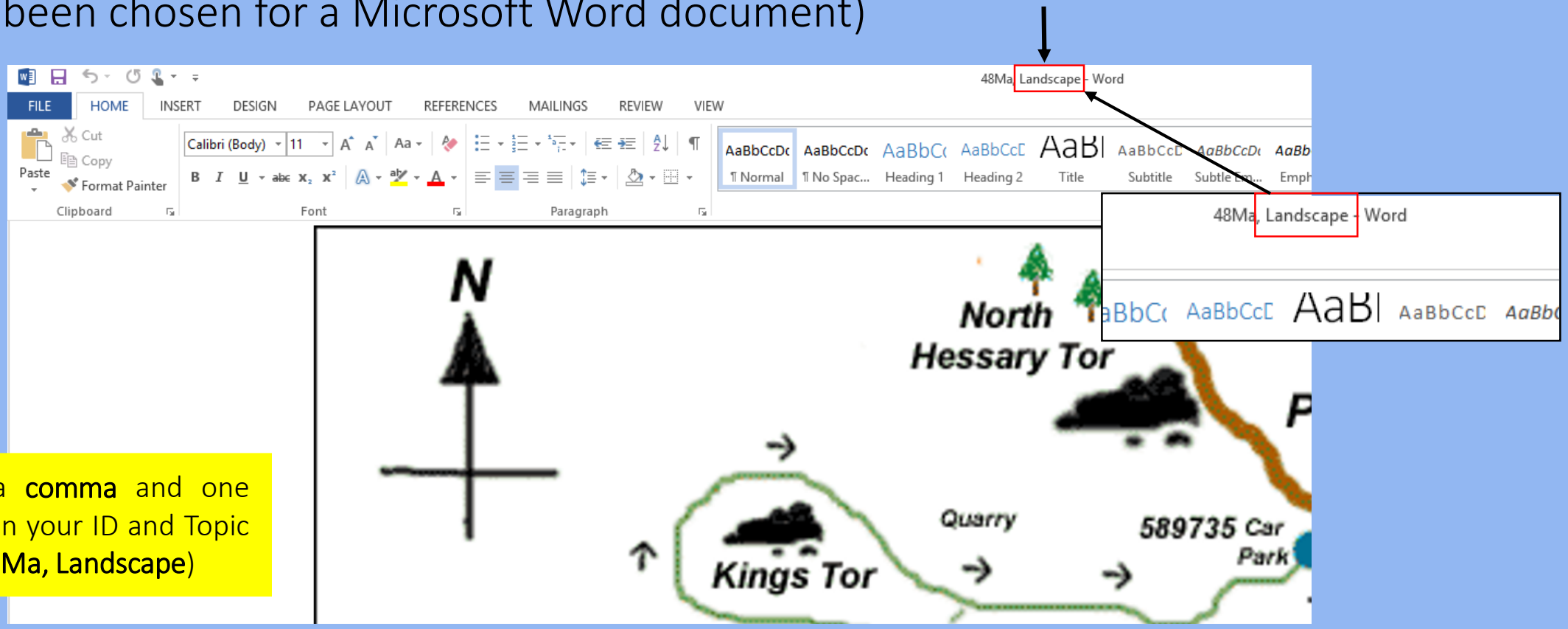
2. As you save and name your file, write your School/college or Group ID label in your digital document **header**. (SEE BELOW where the **27Pi** ID label has been used to identify Pitworth Primary School, United Kingdom, in a PDF document header)



Please add a **comma** and one **space** between your ID and Topic labels (e.g. **27Pi, Water resources**)

TOPIC label

1. Use the TOPIC label list to select the most appropriate TOPIC label.
2. As you save and name your file, write the TOPIC label in your digital document **header**. (SEE BELOW where the **LANDSCAPE** topic label has been chosen for a Microsoft Word document)



Please add a **comma** and one **space** between your ID and Topic labels (e.g. **48Ma, Landscape**)

Student / contributor name and date-time stamps

- Please record the **date and time** that a digital document was completed. This will be particularly useful to the archaeologists, of the future, who discover the Lunar archive.
- Date and time stamps should be entered into the body of the original digital document (i.e. as a Microsoft Word header or footer).
- Contributors are also invited to record their name within the original digital document that they create.
- As an example, a student may decide to record their name on a painting which has been digitally scanned and stored in PDF format.
- Teachers / group leaders should decide if this is appropriate, taking into account local **child protection** and **data protection guidelines.**

Student / contributor names and date-time stamps **must not** be included in the **official labelling** of the document

What Next?

- Think about what your students should do. Plan their activity. Confer with LM1 if required.
- Send your completed digital documents, as email attachments, to: pilot@lunarmissionone.com
- In June this year, go to the Lunar Mission One website for details of this year's World Space Week (WSW) event.
- As a Pilot school you will be invited to take part in a range of inspirational Space Science related WSW activities.
- A global webinar will take place during World Space Week 2016, to celebrate the success of our Pilot schools programme. This will be repeated every year to celebrate the annual achievements of schools.

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Lunar Mission One

@lunarmissionone

#lunarmissionone

http://www.lunarmissionone.com

Appendices:

- Life on Earth archive and STEM projects - TOPIC label list
- Large File Transfer guide

(for email attachments that exceed email provider file transfer limits)

- Active list of ‘Life on Earth’ project ideas – (www.lunarmissionone.com)
- Active list of STEM project ideas – (www.lunarmissionone.com)
- Active list of STEM websites - (www.lunarmissionone.com)

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Life on Earth archive TOPIC label list

- **Select** a Topic label that describes the content of your LM1 Pilot archive contribution
- **Add** the Topic label to your digital document header

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Topic Label List 1.

Society:

- Education
- Health
- Housing
- The Law
- People and events
- Politics and Government
- Population
- Science and technology
- Architecture
- Social welfare
- Transport and communications
- The World Wide Web
- Social media
- Society General

Culture:

- Arts and entertainment
- Beliefs and attitudes
- Consumption
- Customs and heritage
- Home and community
- Language
- Leisure and recreation
- Life style
- Religion and philosophy
- Cultural diversity
- Social equality
- Sport and games
- Tourism
- Culture General

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Topic Label List 2.

Environment:

- Landscape
- Geology
- Soils
- Botany
- Forestry
- The seas
- Climate
- Wildlife
- Conservation
- Environmental pollution
- Climate change
- Urban environments
- Industry in the environment
- Agriculture
- People in the environment
- Planning issues
- Water resources
- Global resource management
- Environment General

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Topic Label List 3.

The Economy:

- The economy as a whole
- Finance
- Industry
- Overseas trade
- People at work
- Personal finance
- Public sector
- Economic wealth
- Income distribution
- Economy General

History:

- Social History
- Cultural History
- Economic History
- Political History
- Religious History
- Military History
- History General

STEM:

- STEM Science
- STEM Technology
- STEM Engineering
- STEM Mathematics
- STEM General

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Large File Transfer to the Lunar Mission One Life on Earth archive

- Free file transfer for files up to 2GB in size is available at www.wetransfer.com
- To Transfer large files to the LM1 Pilot programme archive:
  - Enter the LM1 destination email address pilot@lunarmissionone.com
  - Enter your local institution email address
  - Attach your files using the ‘Add files’ button
  - If required, add comments for Lunar Mission One data management team
  - Select ‘Transfer’