

Energy Transformation

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Classes for which experiment is required

Teacher: Mrs Kathryn Grainger **Year Group:** 11 Physics

Room	Period	Date
1L3	1	Thu 12/9/19
1L3	4	Fri 13/9/19
1L3	3	Mon 16/9/19
1L3	2	Tue 17/9/19

Items to be prepared by laboratory technician

3 * Pasco Track (50cm)
1 * Pasco Cart
1 * Pasco Track Stopper
1 * Centimeter Ruler
1 * Metre Ruler
1 * Retort Stand
1 * Protractor
1 * Spring (loop)
1 * Camera
1 * Phone
5 * Weights (100g)
1 * String (200cm)

Procedure or reference, including variations

Refer to the EPI document for the method.

Equipment to be used

100 g mass

digital camera

Standard handling procedures

Fragile. Store in secure location to avoid theft.

metre rule

Potential hazards

May be used for sword fighting.

protractor

Potential hazards

Sharp corners may scratch.

retort stand

Potential hazards

Centre of mass of supported object is often high and the stand may topple over.

ruler

Potential hazards

Long rulers can be used as swords. Wooden and plastic rulers burn if placed in Bunsen flame. Plastic ruler may fracture into sharp shards if broken. Wooden rulers may have splinters.

Standard handling procedures

Check for splinters before use of wooden ruler.

spring

string

Potential hazards

May be used as a garotte or restraint.

Others

Pasco Cart - People may step on the cart, hence warn people to go around or set up the experiment on an elevated surface.

Pasco Track - potential tripping hazard, therefore set up the experiment on an elevated surface.

Pasco Track Stopper - Can be thrown around the lab, which may injure people in the room, therefore use it only for the purpose of keeping the cart on the track.

Knowledge

I/we have read and understood the potential hazards and standard handling procedures of all the equipment, chemicals and biological items, including living organisms.

I/we have read and understood the Safety Data Sheets for all hazardous chemicals used in the experiment.

I/we have copies of the Safety Data Sheets of all the hazardous chemicals available in or near the laboratory.

Agreement by student(s)

I/we, Aravindh Sundharam Saravana Ganesh, Vishnu Sivakumar, agree to conduct this experiment safely in accordance with school rules and teacher instructions.

Risk assessment

I/we have considered the risks of:

fire or explosion	breakage of equipment	exposure to pathogens	waste disposal
chemicals in eyes	injuries from equipment	injuries from animals	improper labelling/storage
inhalation of gas/dust	rotating equipment	intense light/lasers	inappropriate behaviour
chemicals on skin	electrical shock	UV, IR, nuclear radiation	communication issues
ingestion of chemicals	vibration or noise	pressure inside equipment	allergies
runaway reaction	sharp objects	heavy lifting	special needs
heat or cold	falling or flying objects	slipping, tripping, falling	other risks

Assessment by Student(s)

I/we have assessed the risks associated with performing this experiment in the classroom on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2018.

I/we consider the inherent level of risk (risk level without control measures) to be:

Low risk Medium risk High risk Extreme risk

Risks will therefore be managed by routine procedures in the classroom.

Certification by Teacher

I have assessed the risks associated with performing this experiment in the classroom on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2018. I confirm that the risk level and control measures entered by student(s) above are correct and appropriate.

Name: **Signature:** **Date:**

Certification by Laboratory Technician

I have assessed the risks associated with preparing the equipment, chemicals and biological items, including living organisms, for this experiment and subsequently cleaning up after the experiment and disposing of wastes, on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2018.

I consider the inherent level of risk (risk level without control measures) to be:

☐ Low risk ☐ Medium risk ☐ High risk ☐ Extreme risk

Where the risk level is "medium risk", "high risk" or "extreme risk", the following control measures will be employed:

Control measures (attach further pages as required):

☐ safety glasses ☐ gloves ☐ lab coat ☐ apron ☐ fume cupboard

With the specified control measures in place, I have found that all the risks are "low risk". Risks will therefore be managed by routine procedures in the laboratory, in combination with the specified control measures.

Name: **Signature:** **Date:**

Monitoring and review

This risk assessment will be monitored using comments below and will be reviewed within 15 months from the date of certification.

Attach further pages as required