**题目设置**

以英文题目为准，中文翻译仅供参考

**A组：**

1. Funnel and Ball

A light ball (e.g. Ping-Pong ball) can be picked up with a funnel by blowing air through it. Explain the phenomenon and investigate the relevant parameters.
1. 漏斗与球

通过向漏斗中吹气， 一个轻质小球（如乒乓球）可以被拾起。解释此现象并探究相关的参数。

2. Soy Sauce Optics

Using a laser beam passing through a thin layer (about 200 μm) of soy sauce the thermal lens effect can be observed. Investigate this phenomenon.

2. 酱油光学

以一束激光穿透一层薄的酱油（约 200 μm），可以观察到热透镜效应。探究此现象。

**B组：**

1. Filling Up a Bottle

When a vertical water jet enters a bottle, sound may be produced, and, as the bottle is filled up, the properties of the sound may change. Investigate how relevant parameters of the system such as speed and dimensions of the jet, size and shape of the bottle or water temperature affect the sound.

1. 填充瓶子

当垂直的水柱进入瓶子时， 可能会产生声音， 并且，随着瓶子被填充，声音的特性会改变。探究此系统的相关参数，如水柱的速度与尺寸，瓶子的大小与形状或水温等对声音的影响。

2. Hurricane Balls

Two steel balls that are joined together can be spun at incredibly high frequency by first spinning them by hand and then blowing on them through a tube, e.g. a drinking straw. Explain and investigate this phenomenon.

2. 飓风球

通过起始时用手旋转， 并使用一根管子（如吸管）朝其吹气， 连在一起的两个钢球能以极高频率旋转。 解释并探究这一现象。

**C组：**

1. Newton’s Cradle

The oscillations of a Newton's cradle will gradually decay until the spheres come to rest. Investigate how the rate of decay of a Newton's cradle depends on relevant parameters such as the number, material, and alignment of the spheres.

1.牛顿摆
牛顿摆的振动会逐渐衰减，直到摆球静止。探究相关参数，例如摆球的数量、材质和排列方式对牛顿摆衰减速率的影响。

2. Gyroscope Teslameter
A spinning gyroscope made from a conducting, but non-ferromagnetic material slows down when placed in a magnetic field. Investigate how the deceleration depends on relevant parameters.

2.陀螺仪特斯拉计

当放置在磁场中时，一个由非铁磁性导电材料制成的旋转的陀螺仪会减速。探究相关参数对减速的影响。