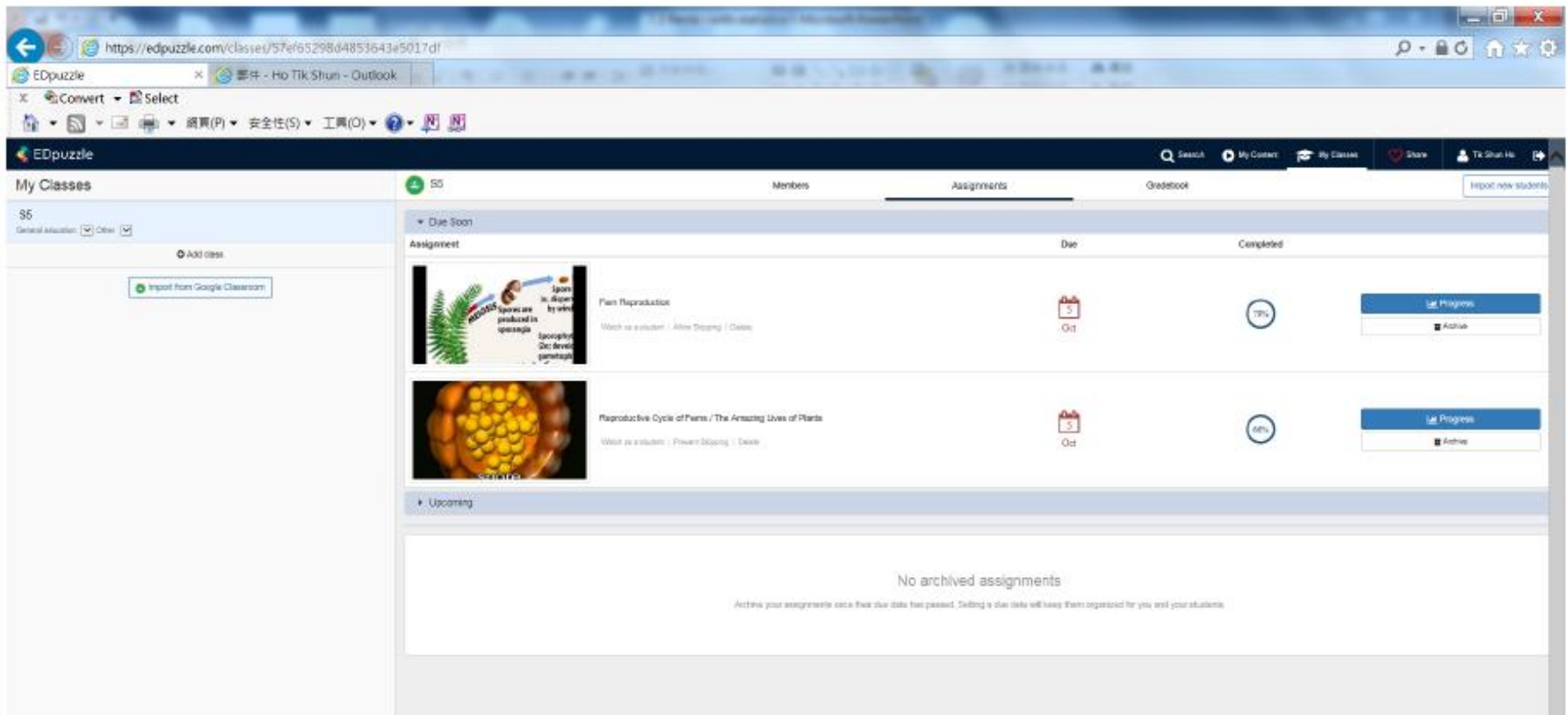


Biodiversity Conservation (1)

Student Learning Activity Records

(A) Teaching Showcase: Exploring Plant Biodiversity in STREAM Approach



(I) Students' Preview Exercise: Self-directed learning through Edpuzzle



The screenshot displays the Edpuzzle web interface. The browser address bar shows the URL: <https://edpuzzle.com/class/57ef65298d4853643a5017df>. The page title is "EDpuzzle". The interface includes a navigation bar with "Search", "My Content", "My Classes", "Share", and a user profile for "T2 Shun Ho".

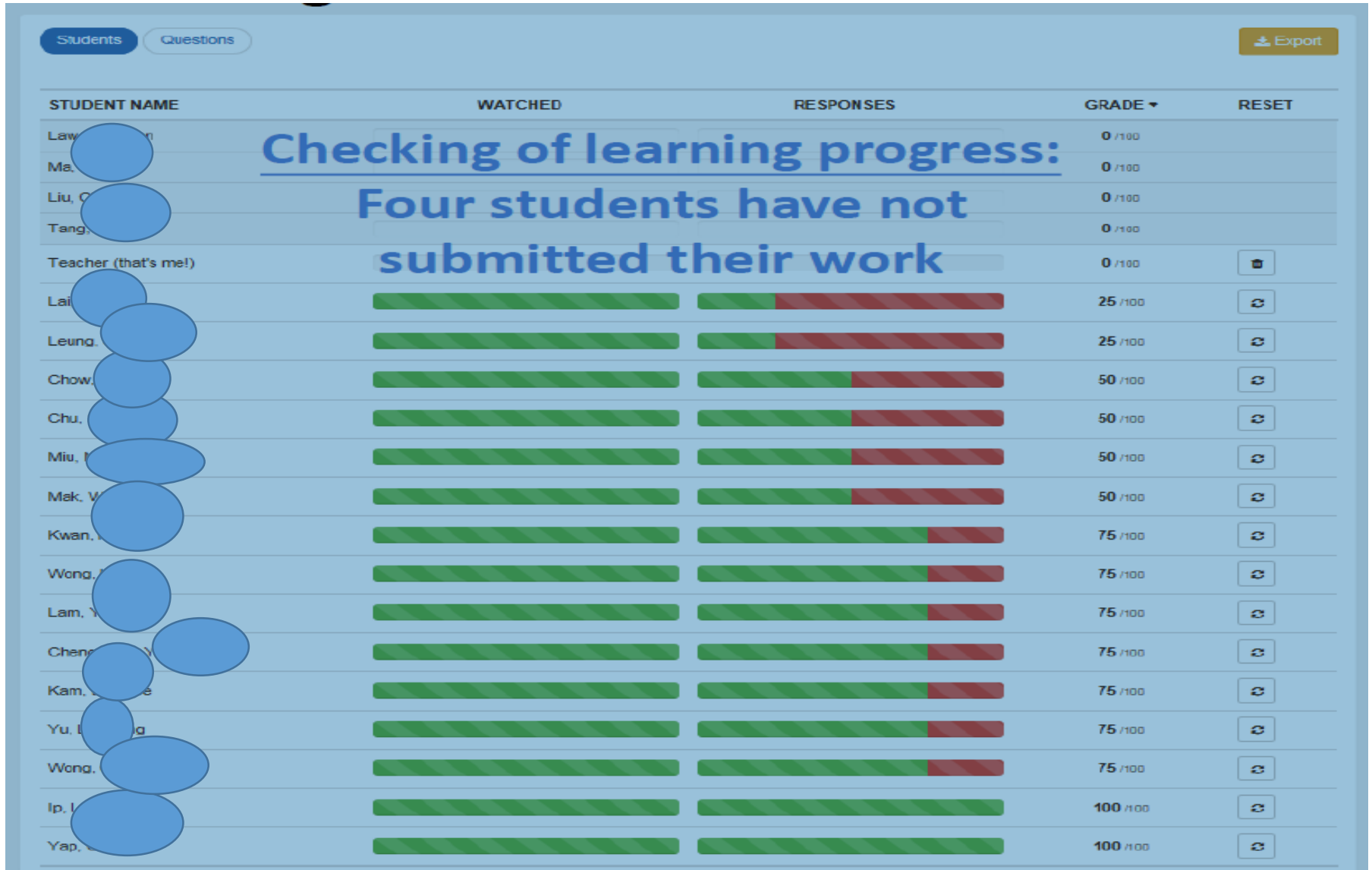
On the left, the "My Classes" section shows a class with ID "95" and a button to "Import from Google Classroom".

The main content area is titled "50" and has tabs for "Members", "Assignments", and "Gradebook". The "Assignments" tab is active, showing a list of assignments:

Assignment	Due	Completed	Actions
 Plant Reproduction Watch as a student Allow Dipping Delete	5 Oct	73%	Progress Archive
 Reproductive Cycle of Plants / The Amazing Lives of Plants Watch as a student Power Slipping Delete	5 Oct	66%	Progress Archive

Below the assignments, there is a section for "Upcoming" which is currently empty, and a message: "No archived assignments".

(II) Analysis of students' performance after self-directed learning



Students

Questions

Export

Which of the following is/are the use(s) of fronds of ferns in tradition?(1...

Multiple choice at 4:21

successful students: **4** /20

Which of the following reasons does NOT explain ferns must live in da...

Multiple choice at 4:21

successful students: **7** /20

In the life cycle of ferns, diploid sporophyte undergoes the process of _...

Multiple choice at 4:21

successful students: **13** /20

Ferns reproduce by producing

Multiple choice at 4:21

successful students: **15** /20

Evaluation of students' performance

- **Poorly answered for Q1 and Q2**
- **Satisfactory performance for Q3 and Q4**

Support

Teacher resources
Help center
Contact

Company

Jobs

Legal

Terms
Privacy

Social

Follow @EDpuzzle
Tweet

Which of the following is/are the use(s) of fronds of ferns in tradition?(1) Food(2) Shelter(3) Art Work



Evaluation of students' performance on Q1 .

Many students have got the wrong answer, not able to summarise the tradition uses of fronds

Evaluation of students' performance on Q2
 Misconceptions need to be rectified as most students have given wrong answers



Back

< Previous Question 3/4 Next Question >

In the life cycle of ferns, diploid sporophyte undergoes the process of _____ to form haploid gametophyte.

Questions overview

Choice	Submissions*
<input type="radio"/> mitosis	2
<input type="radio"/> binary fission	0
<input type="radio"/> cloning	0
<input checked="" type="radio"/> meiosis	13

*Please note that one student can select more than one choice

Students said...

<input type="radio"/> mitosis	<input type="radio"/> binary fission	<input type="radio"/> cloning	<input checked="" type="radio"/> meiosis
Lai, Lok Wai	None	None	Chow
Leung, Cheuk Ying			Chu
			Miu
			Mak
			Kwan
			Wong
			Lam
			Cheng
			Kam
			Yu
			Wong
			Ip
			Yap

Evaluation of students' performance on Q3

Most of the students are clear in concept that diploid sporophyte undergoes meiosis to form haploid gametophyte

Evaluation of students' performance on Q4
All students have prerequisite knowledge on ferns producing spores before the lesson

Back

Ferns reproduce by producing

< Previous Question 1/4 Next Question >

Questions overview

Choice	Submissions*
<input type="radio"/> naked seeds.	0
<input type="radio"/> pollen grains.	0
<input checked="" type="radio"/> spores.	15
<input type="radio"/> flowers.	0

*Please note that one student can select more than one choice

Students said...

<input type="radio"/> naked seeds.	<input type="radio"/> pollen grains.	<input checked="" type="radio"/> spores.	<input type="radio"/> flowers.
None	None	Lai	None
		Leung	Not Submitted
		Chow	Law, Y...
		Chu	Ma
		Miu	Liu, C
		Mak	Tang
		Kwan	Teacher (that's me!)
		Wong	
		Lam	
		Cheng	
		Kam	
		Yu	
		Wong	
		Ip	
		Yap	

(III) Apps utilized in the teaching practice



QR Scan: establishing linkage of the code to online KB platform



Edpuzzle: platform for analyzing student performance in self-directed learning



Nearpod: freezing student ipad monitors to assist Learning and Teaching



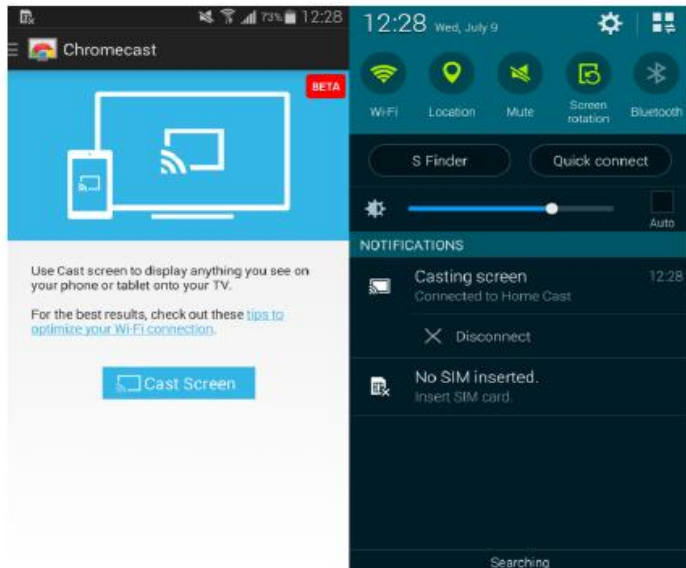
Classroom

Google Classroom: platform for assignment/task delivery



Parrot Flower Power:
measuring and integrating
environmental parameter of soil

Cloud Knowledge-Based:
platform for fostering self-
directed learning



Languages



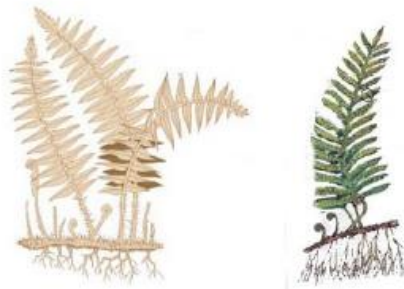
Science



Mirror360: mirroring monitor
capture among groups for presentation

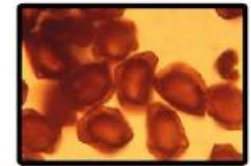
LIFE CYCLE OF A FERN

1 Mature Sporophyte
Fully Grown Plant



2 Releases Spores
Spread by the Wind

Sporangium
Produces and Contains Spores

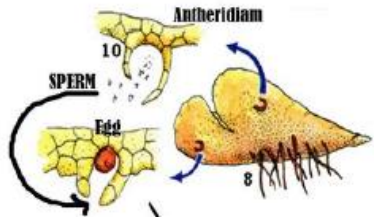


3 Gametophyte
Heart-shaped Green Tissue



Fertilization

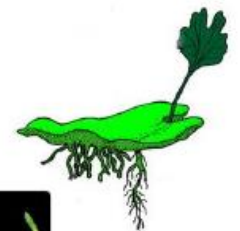
Rain Causes Swelling in the Antheridium causing it to burst, allowing the Sperm which it was holding to fertilise the egg



Zygote begins to grow

4 New Sporophyte

Main Fern Plant. Grows from Gametophyte



Reading information
online from QR code for
mobile learning



Fern Garden

Locations > Fern Garden



(F1) 兔腳蕨



(F2) 海金沙



(F3) 翠雲草



(F4) 華南毛蕨



(F5) 腎蕨



(F6) 銀脈鳳尾蕨



(F12) 波士頓蕨

**Reading information
online from QR code for
mobile learning**



- Astronomy (6)
- Biodiversity (32)
 - Animal (11)
 - Plant (16)
- Biophysics (2)
- Biotechnology (4)
- Cancer Biology (7)
- Chemistry (44)
 - Compounds Interest (7)
 - Fun Experiments (9)
 - Lab Techniques (9)
 - S.3 Curriculum (5)
 - S.4 Curriculum (15)
 - S.5 Curriculum (5)
 - S.6 Curriculum (7)
- Corals (1)
- Evolution (9)
- Human Reproduction (3)
- Levels (127)
 - 1.Starter (61)
 - 2.Mover (49)
 - 3.Flyer (17)
- Mathematics (4)
 - Paper Discussion (1)
- Microscopic World (3)
- Paleontology (5)
- Physics (3)
- Popular Science (36)
- Prehistoric Life (13)
- Reader Exercises (3)
- Space Seed (2)



2.MOVER, BIODIVERSITY, LEVELS, PLANT, POPULAR SCIENCE

THE MAGIC OF FERNS

© SEPTEMBER 29, 2016 ▲ CFSSAUTHOR

What is Fern?

A **fern** is a member of a group of about 10,560 known extant species of vascular plants that reproduce via spores and have neither seeds nor flowers. They differ from mosses by being vascular (i.e. having water-conducting vessels). They have branches stems and leaves, like other vascular plants.

Ferns first appear in the fossil record 360 million years ago in the late Devonian period but many of the current families and species did not appear until roughly 145 million years ago in the early Cretaceous, after flowering plants came to dominate many environments. The fern *Osmunda claytoniana* is a paramount example of evolutionary stasis. Paleontological evidence indicates it has remained unchanged even at the level of fossilized nuclei and chromosomes for

[Reading information online from QR code for mobile learning](#)

(IV) Students' Work from the teaching practice

**Group A:
Dichotomous keys**

**Group B:
Adaptive features**

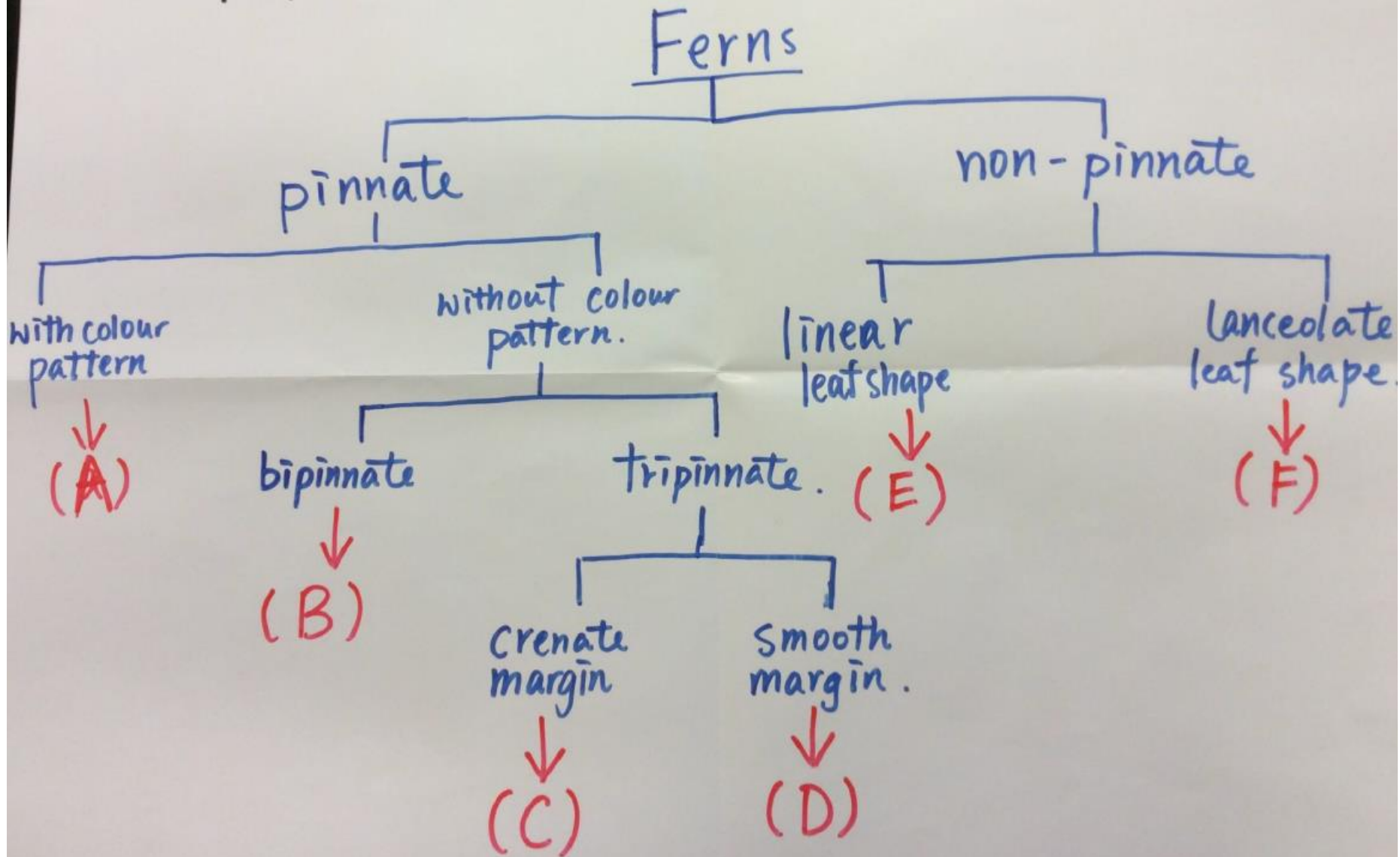


FERNS

**Group C:
Physical parameters**

**Group D:
Chemical parameters**

A Dichotomous Key of Ferns





(A) *Pteris cretica* var. *albo-lineata*



(B) *Nephrolepis auriculata*



(C) *Cibotium barometz*



(D) *Pteris finotii* Christ



(E) *Neottopteris nidus* cv.



(F) *Pronephrium simplex*
(Hook) Holtt.

Group A: Dichotomous keys

- 1 a With odd-pinnate 2
 b With bipinnate *Adiantum diaphanum* Blume
 2 a With acuminate leaf apices 3
 b With truncate leaf apices 4
 c With acute leaf apices *Asplenium prologatum*
 3 a With crenate leaf margin *Cibotium barometz*
 b With pinnatilobate leaf margin *Sphaeropteris lepifera*
 4 a With entire leaf margin *Adiantum flabellulatum* Linn
 b With serrate leaf margin and deeper color *Adiantum philippense*



1b) *Adiantum diaphanum* Blume 2c) *Asplenium prologatum*

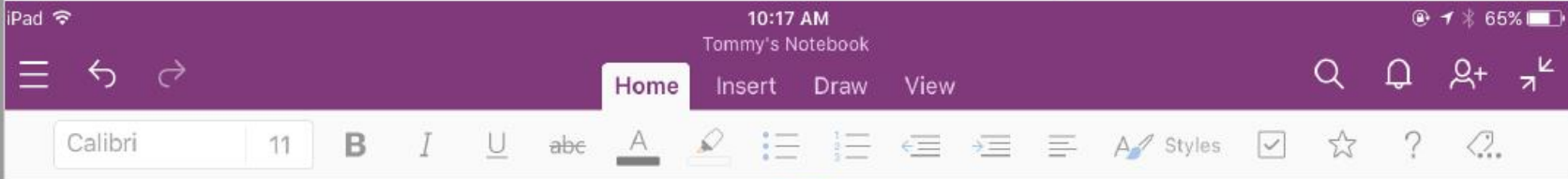
3a) *Cibotium barometz*



3b) *Sphaeropteris lepifera*

4a) *Adiantum flabellulatum* Linn

4b) *Adiantum philippense*



Thursday, 6 October 2016 9:49 AM



The Adaptive Features of Ferns

A) Photosynthesis

1. Large leaf surface area ---> facilitate the absorption of sunlight
2. Dark green colour of leaves ---> able to pack more chlorophyll to absorb more sunlight
3. Extensive leaves ---> increase surface area to absorb sunlight

B) Water loss

1. No cuticle ---> increase water loss
2. Grow in damp places ---> prevent desiccation

C) Reproduction

1. Produce large amount of spores ---> increase successful fertilization
2. Spores ---> dispersed by wind
3. Undergo vegetative propagation (rhizome) ---> better anchorment



ADAPTIVE FEATURES OF FERN

A) PHOTOSYNTHESIS :

- Large surface area of leaves
↳ facilitate Sunlight absorption.

- Dark **Green** Colour of leaves
↳ able to pack more **Chlorophyll**
- Extensive leaves network.

B) Reproduction :

- Large amount of spores
↳ Compensate loss of spores during dispersion.
- Rhizomes → Gives rise to a new plant.

Did You know? : Fern have no article, ?? therefore they live in damp areas.

FERN101.

Physical parameter

3 plants were studied:

Capsicum annuum, *Nephrolepis auriculata* and *Pteris ensiformis* 'Victoriae'

Physical parameters were measured

- Light intensity
- Temperature



Data Collected

Group C: Physical parameters

Capsicum annuum

Location

- Open area, received sunlight directly

Light intensity

- Maximum light intensity reached 500k lux at noon

Temperature

- Temperature is high
- Reached 42 °C at noon



Pteris ensiformis 'Victoriae'

Location

- Shady area

Light intensity

- Maximum light intensity reached 50k lux at noon

Temperature

- Temperature is relatively low
- About 30 °C at noon



**Ferns survive in damp environment. The Pavilion shield away 90% of light and keeps plants from overheating and dehydration.*

**The sheltered environment is crucial for ferns to grow as they are not protected by waxy cuticle on their fronds. Highly branched frond also renders the ferns with high transpiration rate if put in exposed area.*

Group D: Chemical parameters

Group D's Work during Lesson



Students doing the test for determination of nitrogen content in filtered soil solution



Students constructing knowledge through iPad (Self-directed Learning)



Students presenting their findings and what they have learned during the lesson

Self-directed Learning – using iPad to search information

homeguides.sfgate.com

Ad

Expat Health Insurance HK

Find out how much you can Save Compare International Insurance Online
nowcompare.com/Hong-Kong

Levels

The normal background level of nitrates in soil not fertilized or used for commercial crops ranges from 5 to 10 parts per 1 million (ppm). Optimum nitrate level for soil used for corn (*Zea mays*) production is more than 25 ppm. Nitrate levels between or higher than 25 ppm to 30 ppm are sufficient to grow plants in a vegetable garden.

Soil Type

Nitrate levels are highest in soils that have finer textures, such as clay and silt, rather than those with rough textures, such as sand. Because nitrates are moved through soil by water, sandy soil often loses nitrates due to leaching, and heavy, coarsely textured soil loses nitrates due to denitrification, a process in which anaerobic bacteria in the soil converts nitrates to gaseous forms of nitrogen. Leaching and denitrification can cause nitrate pollution of water supplies and should be considered when deciding whether or not to apply additional nitrogen to soil.

Nutrients and Soil

Ferns require nitrogen to develop proper green color. They can obtain nitrogen and other necessary nutrients, such as potassium, from compost mulch, peat and other organic material. A fertilizer containing 100 parts per million of nitrogen in a balanced 15-5-15 formula that contains equal amounts of ammonia and nitrate helps ferns develop better leaf color. Adding peat to the soil, especially when growing potted ferns, also promotes fern growth.

by NEULOG
NEULOG Nitrate Logger Sensor, 15 bit ADC Resolution, 100 S/sec Maximum Sample Rate
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Price: \$332.08 & FREE Shipping, Details
Only 3 left in stock (more on the way).
Want it Friday, Oct. 27? Order within 1 hr 49 mins and choose Two-Day Shipping at checkout. Details
Ships from and sold by Amazon.com. Gift-wrap available.

Touch the image to zoom in

HANNA Instruments
Products Parameters Support MSDS
Specifications Manual
Benchtop Multiparameter Photometer for Water Analysis - HIB3200
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The HIB3200 Multiparameter Photometer for specific ion measurements combines accuracy and ease of use in an ergonomic benchtop design. This meter is one of the most versatile photometers in the market, offering 44 measurement methods using ready-made liquid or powder reagents. The HIB3200 has many advanced features including a graphic LCD to display various chemical forms and a step by step tutorial made for inexperienced users.

44 measurement methods

Mosaic CropNutrition

Nitrogen is an essential nutrient for plant being one of the most abundant elements nutritional problem affecting plants world directly available to plants.

- Jump to Section:**
- Nitrogen in Plants
 - Soil Nitrogen
 - The Nitrogen Cycle
 - Plant Nitrogen Needs and Uptake
 - Fertilizer Management
 - Additives for Nitrogen Fertilizers

Nitrogen in Plants

Healthy plants often contain 3 to 4 percent nitrogen in their above-ground tissues. This is a much higher concentration compared to other nutrients. Carbon, hydrogen and oxygen, nutrients that don't play a significant role in most soil fertility management programs, are the only other nutrients present in higher concentrations.

Nitrogen is so vital because it is a major component of chlorophyll, the compound by which plants use sunlight energy to produce sugars from water and carbon dioxide (i.e., photosynthesis). It is also a major component of amino acids, the building blocks of proteins. Without proteins, plants wither and die. Some proteins act as structural units in plant cells while others act as enzymes, making possible many of the biochemical reactions on which life is based. Nitrogen is a component of energy-transfer compounds, such as ATP (adenosine triphosphate). ATP allows cells to conserve and use the energy released in metabolism. Finally, nitrogen is a significant component of nucleic acids such as DNA, the genetic material that allows cells (and eventually whole plants) to grow and reproduce. Without nitrogen, there would be no life as we know it.



Group D's Worksheet

Group D: Chemical parameters

Secondary 4
Plant Diversity: Test for Chemical Parameters

Group: G2

Date: 5th October, 2016

Objective: To study the content in soil

Chemicals and apparatus:

Ammonia Test solution	Test tube with graduation mark
Nitrate Test solution	Measuring Cylinder (100 mL)
Nitrite Test solution	Beaker (50 mL)
Distilled Water	Spatula
Soil Sample	Electronic balance



Procedure:

1. Add 50 mL of distilled water into a beaker.
2. Collect 10 g soil sample from the Environmental Trail.
3. Add the soil sample into the beaker of distilled water and mix the solution.
4. Filter out the insoluble substances in soil and collect the filtrate.
5. Pour the 5 mL of filtrate into 3 test tubes with graduation mark respectively.
6. Add each test solution, according to its instructions, into one of the test tubes.
7. Record the concentration of ammonia, nitrite and nitrate in the results table.

Results:

Test Solution	Ammonia	Nitrite	Nitrate
Chemical Formula	NH_3	NO_2^-	NO_3^-
Concentration in solution of soil sample	0-0.25 ppm	0-0.25 ppm	0-5 ppm

Discussions:

1. From your findings, which element is found in soil?

Nitrogen

2. Why are these minerals important to the growth of fern?

They contain nitrogen which can be used to form protein. Chlorophyll is a kind of protein, and it is responsible for carrying out photosynthesis to produce food for the growth of ferns. Having more chlorophyll can make the ferns greener as it is a green pigment.

3. Is the soil in good condition for the ferns to grow? Why?

No, because the sum of the three concentrations is far below the optimum concentration of nitrogen (100 ppm)

Students are able to apply what they learned in chemistry and write down the chemical formula of ammonia, nitrite ion and nitrate ion. Also, their findings shows the presence of nitrogen in these minerals in soil. Hence, they can tell us the nitrogen is found in soil.

Students understand the importance of nitrogen to the growth of fern – production of chlorophyll (greener leaf) → for photosynthesis to produce food.

Students find out the soil in our school does not have sufficient nitrogen content for fern to grow.

Group D's Worksheet

Group D: Chemical parameters

By searching in the web, students can construct knowledge by themselves.

For example, students can explain why nitrogen content in our school soil is far below to the optimum one. Then, they can give suggestions to school.

Students also point out the problem of using this test kit and suggest improvement for the test.



As requested by students, they do further test for ammonia in soil sample for more accurate results.

Your reflection:

Possible reasons for concentration of nitrogen we obtained is far below than the optimum one

- rough soil texture (soil particles are big)
- Nitrate is highly soluble in water → can be drained away easily
- nitrate being bonded to the roots of the ferns

Suggestion

- add fertilizer to increase nitrogen concentration in soil
- ! too concentrated fertilizer → osmotic outflux from the roots of ferns
 - underground water contamination
 - poisoning of grazing animals

Problem

color chart comparison → not accurate (hard to determine the concentration if the color we get falls between two values)

Solutions

- use data-logger with nitrate/nitrite/ammonia ISE (Ion Selective Electrode)
- multiparameter photometer

⇒ can be done in the future to obtain a more accurate results

Group D's Further Work – Ammonia Test using Photometer



Preparing filtered soil solution



Adding reagent into 10 mL of soil solution



After 3:30 mins, read the concentration of ammonia



Concentration is determined more accurately using photometer (resolution: 0.01 ppm) than the test kit (using color chart)

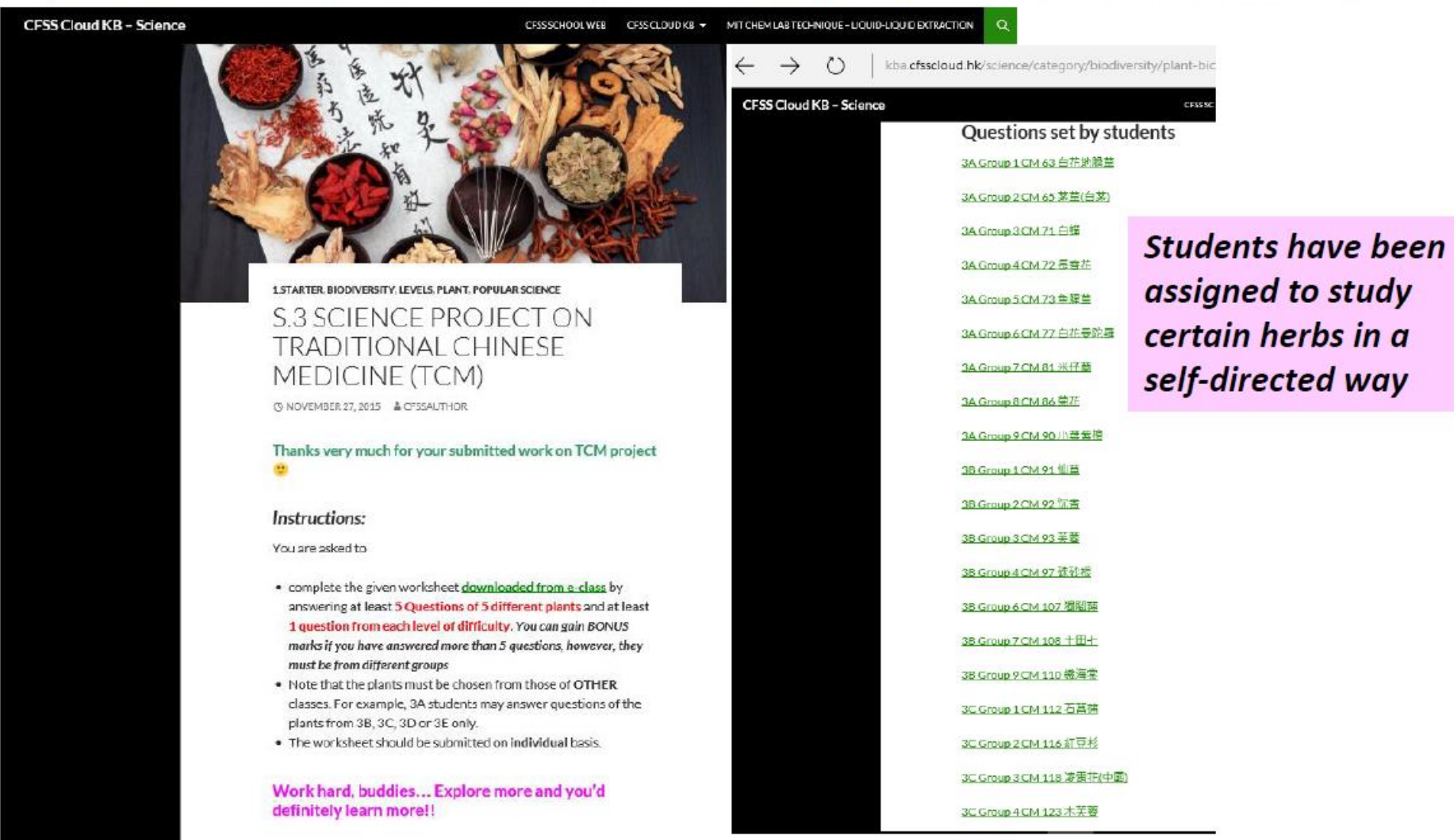


(V)Assessment Rubrics

Assessment Rubrics		Level 1	Level 2	Level 3	Level 4
Gp A	Dichotomous key	<ul style="list-style-type: none"> Many errors in construction of classification scheme. Properties combined in a manner showing lack of understanding and careful observation. 	<ul style="list-style-type: none"> Some errors in construction of classification scheme. Properties used show lack of careful observation. 	<ul style="list-style-type: none"> Constructs classification scheme correctly. Questions or statements are in pairs. No more than 2 errors. Properties used show careful observation. 	<ul style="list-style-type: none"> Constructs classification scheme correctly. Questions or statements are in pairs. No errors Properties used show careful observation.
Gp B	Drawing	<ul style="list-style-type: none"> Low degree of likeness to the specimen. Poor scaling Many mistakes in labelling and title. 	<ul style="list-style-type: none"> Fair degree of likeness to the specimen. Some mistakes in labelling and title. 	<ul style="list-style-type: none"> High degree of likeness to the specimen. Reasonable scale Some mistakes in labelling and title. 	<ul style="list-style-type: none"> High degree of likeness to the specimen. Reasonable scale Accurate labelling. Appropriate title.
Gp C	Data Collect & Analysis - Physical	<ul style="list-style-type: none"> Unable to integrate the data 	<ul style="list-style-type: none"> Inconsistent of units during integration of data Point out the general characteristic of the habitat of the plants. 	<ul style="list-style-type: none"> Integrate different physical parameters from the data loggers. Describe the general characteristic of the habitat No more than 2 errors. 	<ul style="list-style-type: none"> Integrate different physical parameters from the data loggers. Explain the general characteristic of the habitat of the plants. No errors Able to point out and explain the abnormality of the data
Gp D	Data Collect & Analysis - Chemical	<ul style="list-style-type: none"> Many malpractice that could lead to false positive No trustworthy chemical parameter has been collected 	<ul style="list-style-type: none"> Some malpractice that could lead to poor accuracy Fair experimental skills 	<ul style="list-style-type: none"> Collect different chemical parameter by conducting relevant tests. No or a few experimental malpractice Correlate the data collected with the structure/habitat/feature of the plants 	<ul style="list-style-type: none"> Collect different chemical parameter by conducting relevant tests carefully. Excellent experimental practice. Explain the structure/habitat/feature of the plants based on the data collected

(B) S.3 Science Project: Traditional Chinese Medicine (TCM)

<http://kba.cfsscloud.hk/science/2015/11/27/s-3-science-project-on-traditional-chinese-medicine-tcm/>



CFSS Cloud KB - Science

CFSSSCHOOL WEB | CFSS CLOUD KB | MIT CHEM LAB TECHNIQUE - LIQUID-LIQUID EXTRACTION

← → ↻ | kba.cfsscloud.hk/science/category/biodiversity/plant-bio

CFSS Cloud KB - Science

Questions set by students

- [3A Group 1 CM 63 白花地膽草](#)
- [3A Group 2 CM 65 茶葉\(白茶\)](#)
- [3A Group 3 CM 71 白蟻](#)
- [3A Group 4 CM 72 桑寄生](#)
- [3A Group 5 CM 73 魚腥草](#)
- [3A Group 6 CM 77 白花毒陀羅](#)
- [3A Group 7 CM 81 米仔蘭](#)
- [3A Group 8 CM 84 藥茶](#)
- [3A Group 9 CM 90 川芎藥酒](#)
- [3B Group 1 CM 91 仙草](#)
- [3B Group 2 CM 92 沉香](#)
- [3B Group 3 CM 93 芙蓉](#)
- [3B Group 4 CM 97 豬肚菜](#)
- [3B Group 6 CM 107 獨活酒](#)
- [3B Group 7 CM 108 十田土](#)
- [3B Group 9 CM 110 鐵樹皮](#)
- [3C Group 1 CM 112 石菖蒲](#)
- [3C Group 2 CM 116 紅豆杉](#)
- [3C Group 3 CM 118 凌雲草\(中國\)](#)
- [3C Group 4 CM 123 水芙蓉](#)

1. STARTER, BIODIVERSITY, LEVELS, PLANT, POPULAR SCIENCE

S.3 SCIENCE PROJECT ON TRADITIONAL CHINESE MEDICINE (TCM)

NOVEMBER 27, 2015 | CFSSALTHOR

Thanks very much for your submitted work on TCM project 😊

Instructions:

You are asked to

- complete the given worksheet [downloaded from s. class](#) by answering at least **5 Questions of 5 different plants** and at least **1 question from each level of difficulty**. You can gain **BONUS marks** if you have answered **more than 5 questions**, however, they must be from **different groups**
- Note that the plants must be chosen from those of **OTHER** classes. For example, 3A students may answer questions of the plants from 3B, 3C, 3D or 3E only.
- The worksheet should be submitted on **individual** basis.

Work hard, buddies... Explore more and you'd definitely learn more!

Students have been assigned to study certain herbs in a self-directed way

Students' work:

Secondary 3 Science	
Mini-project on Chinese Medicinal Herbs	
Information sheet	
Class/Group No.:	3A/Group 4 ^o
Class No.:	(07), (15), (19), (28)
Year:	2015-2016
Instruction: Type in useful information in the space provided.	
Chinese name:	長春花 ^o
Family Name (科名):	Apocynaceae ^o
Scientific name (學名):	Cathartus roseae ^o
Common name (俗名):	Vinca, Cape Periwinkle, Rose Periwinkle, Rosy Periwinkle, "Old-man's", loose or dwarf periwinkle, myrtle, creeping myrtle, 日香, 日日草, 日日新, 二葉花 (廣西、廣東), 四時春, 時鐘花及雞血草 ^o
習性:	Growth habit: It is widely cultivated and is naturalized in subtropical and tropical areas of the world. It blooms in late spring and occasionally in summer and fall.
葉:	Leaf: The plant is a dicot. The leaves are oval to oblong, 2.5-9 cm long and 1-3.5 cm broad, glossy green, hairless, with a pale midrib and a short petiole 1-1.8 cm long; they are arranged in opposite pairs.
花:	Flower: The flowers are white to dark pink with a darker red centre, with a basal tube 2.5-3 cm long and a corolla 2-5 cm diameter with five petal-like lobes.
果:	Fruit: The fruit is a pair of follicles 2-4 cm long and 3 mm broad.

性味功能 ^o 全株有毒，誤食後，會造成白血球減少，血小板減少，肌肉無力，口腔腫痛等症狀。 ^o	Properties: ^o The plant can be extremely toxic if consumed orally by humans ^o
主治 ^o 可止痛、消炎、安眠、通便及利尿。亦有配伍入治療癌症的藥方，作為藥劑中的一味，因為它具有抗腫瘤成分，其乳汁中所含生物鹼，被證實出來作為多種癌症如白血病、淋巴瘤所用的化學治療藥物。 ^o	Treats: ^o Extracts from the plant been used against numerous diseases, including diabetes, malaria, Hodgkin's lymphoma, insect stings, eyewash for infants, asthma, excess gas, painful menstruation tuberculosis and rheumatism. The plant contains dozens of alkaloids, including vincristine, which was found to have anti-tumor properties. An alkaloid in the plant, vincristine, is utilized for treating leukaemia in children. It has been credited with significantly improving the survival rate of victims of childhood leukemia. ^o
加多一點點: ^o 栽培時應避免烈日，於西水澆上，應避免過於濕潤，口頭需充足，最好全日積在室內，應避免，要選擇耐水性的介質栽培，澆水時應避免乾濕交替且應為乾乾現象時才澆水。 ^o	More to learn: ^o It should be grown in subtropical gardens where temperatures never fall below 5 °C to 7 °C, and in temperate gardens. Full sun and well-drained soil are preferred. ^o
Previous Scientific Research (if any): ^o Effect of an antidiabetic extract of <i>Cathartus roseae</i> on enzymic activities in streptozotocin induced diabetic rats (Jin, Jiah, Wang, J, Xuesi Yan, Shida Sun, Audrey Ryan, M.M.L. Hanna, S. Rajaguru, K. Siddharth, Debraj Kumar of Physiology and Allied Sciences, Lucknow, India) http://dx.doi.org/10.1007/s12010-010-0000-9 (October 2010; received in revised form 1 April 2011; accepted 24 April 2011).	
Useful Links: ^o	
Topics: ^o	Hyperlinks: ^o
Introduction of the plant and its uses: ^o	http://zh.wikipedia.org/wiki/長春花 長春花

Students establishing online Cloud Knowledge-Based platform by themselves on TCM, with details of herbal information and questions set of different levels of difficulties for students to answer

How to plant the <i>Cathartus roseae</i> ?	http://www.aboveseeds.com/6644130_gov-vinca.html .
The medical use of <i>Cathartus roseae</i> ?	http://www.vetpack.com/what-are-the-medical-uses-of-cathartus-rosea.html .
Questions:	
Beginner:	<p>Guideline:^o Answer can be directly harvested from the information given.^o</p> <p>1) What are the good properties of <i>Cathartus roseae</i> to humans? Answer: It has anti-tumor properties which can combat cancer. 問題: 長春花具有哪些功效? 答案: 長春花具有抗癌作用。^o</p> <p>2) What are the colors of the flowers of <i>Cathartus roseae</i>? Answer: The flowers of <i>Cathartus roseae</i> are white to dark pink with a darker red center. 問題: 長春花的花的顏色通常是什麼顏色? 答案: 長春花的花的顏色通常為白色或深粉紅色，而有一個較深的紅色中心。^o</p> <p>3) What are the harmful effects of <i>Cathartus roseae</i> to humans? Answer: The plant can be extremely toxic if consumed orally by humans. 問題: 人類誤食長春花後，就會發生什麼事? 答案: 人類誤食長春花後，就會發生中毒。^o</p>
Elementary:	<p>Guideline:^o Answer can be obtained from the information given and the external link.^o</p> <p>1) How tall does the average <i>Cathartus roseae</i> grow? Answer: It grows about 1m tall. 問題: 長春花生長多高? 答案: 長春花生長約1米。^o</p> <p>2) In which regions and climate area does <i>Cathartus roseae</i> naturally grow? Answer: <i>Cathartus roseae</i> usually grows in subtropical and tropical areas, and is a native plant in Madagascar. 問題: 長春花通常生長於熱帶和亞熱帶地區，為馬達加斯加。^o</p> <p>3) How to plant <i>Cathartus roseae</i>? Answer: It blooms in late spring and occasionally in summer and fall. 問題: 長春花何時開花? 答案: 長春花通常在春季和秋季開花。^o</p>

Plant it on steep banks for erosion control, as a bedding plant or in planters and window boxes. 答案: 長春花適宜在春季種植，或作為夏季和秋季盆栽。它可種植於斜坡和窗台/陽台、用於防止泥土流失和美化環境。 ^o	Plant it on steep banks for erosion control, as a bedding plant or in planters and window boxes. 答案: 長春花適宜在春季種植，或作為夏季和秋季盆栽。它可種植於斜坡和窗台/陽台、用於防止泥土流失和美化環境。 ^o
Advanced:	<p>Guideline:^o Questions require higher order thinking. Some information should be found from external links or reference before answering the questions.^o</p> <p>1) What is an anthocyanin pigment found in the flowers of <i>Cathartus roseae</i>? Answer: Rosinidin is an anthocyanin pigment found in the flowers of <i>Cathartus roseae</i>. 問題: 長春花的花的顏色是由什麼色素所形成的? 答案: Rosinidin 是長春花的花中形成的色素。^o</p> <p>2) How can the <i>Cathartus roseae</i> help the environment? Answer: It can be planted on slopes or steep banks to eliminate erosion and the need for dangerous mowing. 問題: 長春花可以如何幫助環境? 答案: 長春花可以種植在斜坡或陡峭的山坡以防止土壤流失和減少中化物的量。^o</p> <p>3) What makes <i>Cathartus roseae</i> so popular? Answer: The five-petaled flowers come from white to various shades of pink, purple and deep red/dark color. Also, the plant's ability to thrive in poor soil and fill swankier ornamental shade garden is a popular garden addition. 問題: 五瓣花由白色到粉紅色、紫色到深紅色顏色。此外，長春花能在土壤貧瘠和花叢中大部分過度的地方下運轉良好，使其成為一個受歡迎的觀賞植物。^o</p>

Online map to record road-side tree biodiversity in Siu Sai Wan

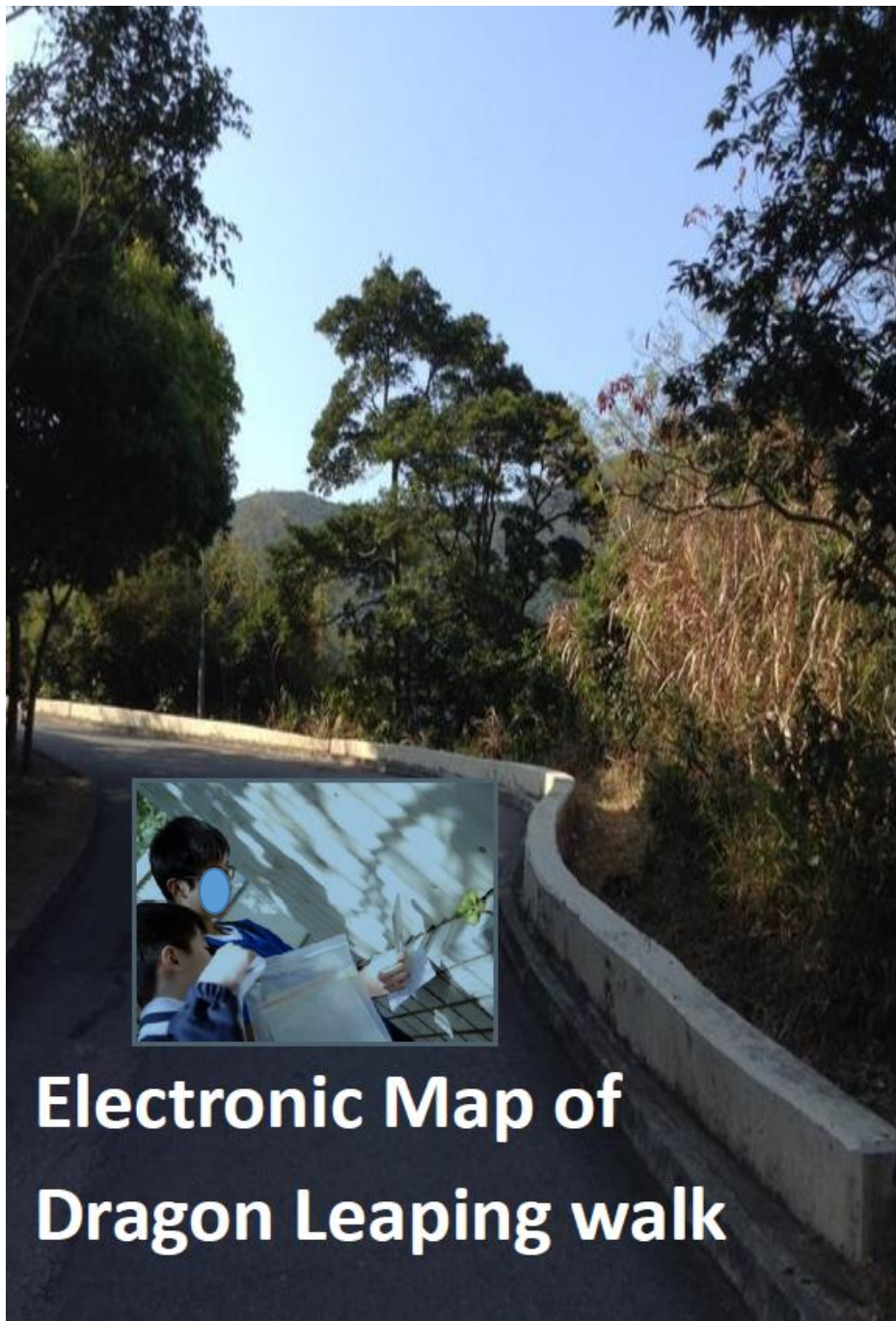


(C) Community Tree Project

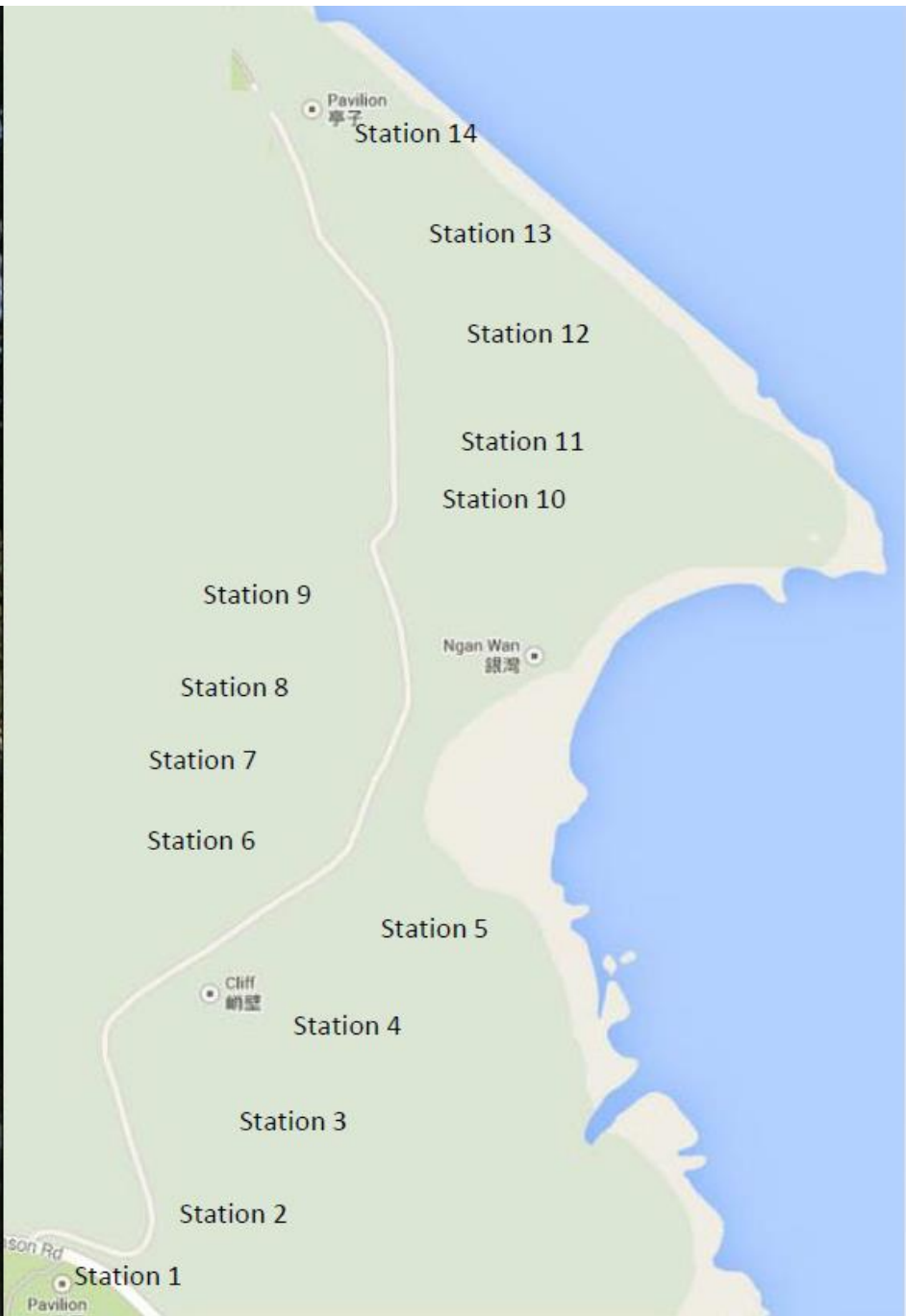
>40 tree species

500+ trees





Electronic Map of Dragon Leaping walk



Plants can be found in Station 1

- 海金沙
- 螻蛄菊
- 白花鬼針草
- 洋紫荊
- 細葉龍船花
- 銀合歡
- 木麻黃
- 天冬

Collection of Plant Specimen



Start the trip



Brief plant collection ethics



Observe the Plant and make detailed field notes



Collect a good specimen



Lay and label the specimen on a newspaper



Press the specimen using Field Press when fresh

回到 MAP

回到 Station 1

海金沙



海金沙---葉軸很細、柔韌且很長。海金沙屬的蕨葉以無限延長的方式展開，且葉軸會偶合在支撐物上，因此每個蕨葉都會形成分開的藤蔓。孢子有藥用價值。