BioStrike SG

Process Rundown

Stages/activities you need to perform over a mobile app

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## Stage 01 : Acquisition of bacteria

## Soil sample collection

**Protocol**

* In a clean plastic bag or jar collect a soil sample
* (some advice on best sites - places where bacteria compete next to a decaying tree trunk etc?)
* take picture of the site
* include GPS location
* describe weather conditions
* include any comments you think are relevant for this

**Interface**

* Upload a photo of sample site
* Tag GPS
* Tag weather conditions
* Keywords?

**Gamification**

* Points or badges for number of soil samples?
* Foursquare style of “owning a location” - owner of microbes in certain location (the king of…)

**Issues**

* People may want to collect more samples at once
  + Each sample is recorded as an individual documentation

## Dilution process: preparation of the sample

**Protocol**

* Prepare sterilized test tubes containing 9ml water each
* Count and label them (eg. 6 test tubes, T1 to T6)
* Place 1g of soil sample into the first test tube (T1)
* Swirl test tube to mix solution well
* Take 1ml out of the test tube and place diluted sample into the next one and swirl to mix solution well
  + (1ml from T1 to T2, 1ml from T2, to T3 and so on)
* Repeat above step until all test tubes contain a sample

**Interface**

* Containing protocol and short video or examples
* Record total number of test tubes used
* Other comments

**Gamification**

* Points or badges for clean samples?
* Points or badges for doing multiple dilutions?

**Issues**

* People don’t do it right, how to scare/motivate them to dilute?
* Measuring of dilution rate, what is the formula?
  + Augmented reality mobile app comparing fluid levels in test tube (real time)

## Agar plates inoculation

**Protocol**

* Prepare sterile petri dish with agar medium
* Describe the agar medium
  + Homemade or bought from someone or lab
* Describe test tube sample (maybe the label)
* Dip sterilized inoculation loop into test tube containing diluted sample
* Streak tip of the inoculation loop with sample onto the agar surface

**Interface**

* Containing protocol, short video and examples
* Record description of agar medium
* Record test tube sample
* Other comments

**Gamification**

* Points every plate
  + Perhaps points can help them to 1. bid for one that gets selected for sequencing; 2. for them to unlock projects 3. for them to ‘purchase’ things to beautify their virtual labs?
    - Hence, it is obvious if a person is an expert if he/she has an elaborate virtual laboratory on the app

**Issues**

* People don’t do it right, how to scare/motivate them?

## Incubating and Logging Soil Sample plate

**Protocol**

* Decide whether to use an incubator or not
* Automated or manual daily logging of temperature with picture and notes
* Decide when to move on to Stage 2

**Interface**

* Record use of incubator or not
* Record log with picture and notes
* Option to move on to Stage 2

**Gamification**

* Points every plate or log

**Issues**

* None

## Stage 02: Identification and testing of antibiotics

## Identification of actinomycetes

**Protocol**

* How to recognise the right ones?
* Tap on expertise and crowdsource for possible candidates

**Interface**

* Picture tagging
* Comments supporting expert supervision
  + professional or experience users
* Scale of 1-5 vote or bet system next to image
* Sharing of image on social media for intelligence

**Gamification**

* Points for each culture on the plate

**Issues**

* Uncertainty about the right strain of bacteria

## Testing Actinomycetes on E.coli plate

**Protocol**

* Prepare e.coli plate
* Describe the medium
  + Homemade or bought from someone or lab
* Describe culture sample (maybe the label of dish and culture colony)
* Collect some culture by scraping with sterilized inoculation loop
* Dab tip of the inoculation loop with culture onto the center of E. coli plate.

**Interface**

* Containing protocol, short video and examples
* Record description of medium
* Record culture sample (dish and culture colony labels)
* Other comments

**Gamification**

* Points every plate
  + Issue of repetitive and boring “gamification” process

**Issues**

* Uncertainty on precision of protocol (never managed to get zone of inhibition)

## Incubating and Logging E.coli plate

**Protocol**

* Decide whether to use an incubator or not
* Automated or manual daily logging of temperature with picture and notes
* Decide when to move on to Stage 3
* Monitor for zone of inhibition and decide optimum size for public scrutiny

**Interface**

* Record use of incubator or not
* Record log with picture and notes
* Allow rating of zone of inhibition once open for public scrutiny
* Option to move on to Stage 3

**Gamification**

* Points every plate or log
* Points for size of zone of inhibition?
* Collection of various zone of inhibitions?
* Collection of odd plates (failures)

**Issues**

* None

## Stage 03: Identifying potential candidates for DNA sequencing

**Protocol**

* Identifying <http://en.wikipedia.org/wiki/Antibiotic_sensitivity> based on the zone of inhibition
* Describe and quantify the zone of inhibition

**Interface**

* Experts vote or pledge money/bitcoin for the sequencing
* Attribution (funny names for the strain identified in this stage?), creating a group of “funders” for a given sample
* Sharing pictures on social media as a publication

**Gamification**

* Points for monetary contribution
* Points for sharing on social media

**Issues**

* None