

## **TEACHER GUIDE SEGMENT**

1. The first paragraph of the video is mainly to stimulate the interests of students so that students can get involved in the learning. The goal is try to engage the students rather than ask them to find a right answer. In activity 1, the teacher should encourage students to solve the problem based on the previous knowledge by exchanging their ideas with each other such as the activity of brainstorming.
2. The intention of the second segment is explained as the follows: After analyzing the history of mathematics, we found that the best example of the number “e” in the real life is compound interest. The optimal stop rule allows us to see that the good application of e in reality. In Activity 2, students can use any graphs they’d like to show the difference between the three deposition ways. But the teacher should watch the graphs made by the students and give them necessary guidance in this activity. After playing the next video, show students some good graphs made by them and praise them. By doing this, students will be further engaged.
3. In the activity 4 – turning cards game, first, students will play without adopting optimal stopping rules. Then the teacher needs to help the students discover the optimal stopping rules by asking them to take some objects as reference samples. The teacher does not need to specify how many reference samples should be used.
4. For this lesson, students should have some knowledge about calculus. In the activity of calculating compound interest, students can get some intuitive experience of data limit by using calculator. In learning the optimal stopping rules, students should focus on building the formula of calculating the cumulative maximum probability. The Derivation of the optimal stopping by using the knowledge of calculus is not required. The teacher should decide whether this part should be introduced based on the previous knowledge of students.