Lesson 6 - Mechanical Clock

Course Objectives	■ Students can operate the models with teachers' demonstration and instruction. ■ Understand the principles and applications of gears. ■ Develop the ability to analyze and improve the structure through group discussion.	Total Time 60 mins
Keywords	Mechanical clock. Gears.	

Teaching Guide	Time (mins)	Teaching Resource	Assessment
1. Increase Students' Motivation (1) A teacher can take out the mechanical clock and ask students how the mechanical clock machine works. Or this teacher lectures the topic story. Students listen and try to comprehend the lesson. (2) A teacher demonstrates the model of this lesson - Mechanical Clock. Please ask students to think about how to make it work in a different way. (3) Brainstorming Do you know the difference between a traditional mechanical clock and a modern electronic watch? （A：Electronic watches are small, portable and multi-functional; while traditional mechanical clocks are large, usually with the tick-tock sound and chiming bell or gong.）	5	▪ Supplemental slides	Self-awareness

2. Course Activity Related to the Manual (1) Students get the basic materials of this model. (2) A teacher can guide students to assemble the model with the building blocks according to the teaching slide and the student's book. (3) Encourage students to modify the model. If a student finishes the adjustment, he or she can do the "Hands-on Experiment" first. (4) Hands-on Experiment Adjust the gear ratio to change the speed of the clock hands, and then observe how they are affected by the adjustment. （A：The larger the gear ratio is, the larger the difference between the teeth numbers of the gears, which makes the clock runs faster if the driver gear is the larger gear.） (5) Hold a contest. Students can discuss and practice during the contest. (6) Hands-on Creativity Try to redesign the outside of the mechanical clock so it looks like Big Ben in England. （A：Share the picture of Big Ben for reference.）	10 20 15	▪ Electronic whiteboard ▪ Projector & Screen ▪ Tablet or computer ▪ Building blocks	Participation
3. Integrated Learning (1) Display all the models of each group. Give the winner group a big hand. (2) A teacher can make a review of the concepts of "Mechanical clock. Gears. "Or this teacher can encourage students to share the experience about either the assembly of the model or the reflection of a game. (3) Students' works can be displayed in the classroom. (4) Remind students to clean up the desk, disassemble the model and put the building blocks back to the boxes.	10	▪ Model ▪ Boxes	Oral Presentation
4. Extension Task (1) Let students to modify the model. See whose mechanical clock looks most creative. （A：Share different pictures of mechanical clocks to inspire students' ideas.）			
Record & Feedback			