A. WARMER

The following are quotes from Albert Einstein. Write them onto flashcards, and hand them out to the students. Do NOT tell them they are by Einstein. Each student needs to speak for two to three minutes on one of the quotes, stating whether they agree or disagree and giving reasons. For larger classes this activity can be done in smaller groups.

*Imagination is more important than knowledge.*

*The only real valuable thing is intuition.*

*I never think of the future. It comes soon enough.*

*Science without religion is lame. Religion without science is blind.*

*The secret to creativity is knowing how to hide your sources.*

*Weakness of attitude becomes weakness of character.*

Once the students have finished presenting their opinions, ask them if they know whose quotes these are.

B. LEAD IN TO LISTENING

Ask the students to give you any information that they might know about the life and work of Albert Einstein.

C. LISTENING

The students are going to watch the first eight and a half minutes of a documentary produced by the History Channel about the life of Einstein. It takes us up to 1905, and what is known as his 'Miracle Year'.

**LISTENING FOR GIST**

http://www.youtube.com/watch?v=2M7SQV7DVTs (this video clip is entitled ‘History Channel Albert Einstein (complete)’ and is one and a half hours long).

The students are going to watch the first eight and a half minutes through once, and answer the following questions:

1. Summarize the life of Einstein up to 1905.
2. What were the four papers about that he published in 1905?
3. Explain each of his theories.

Get the students to discuss the answers in small groups and then get feedback.

**LISTENING FOR DETAIL**

The students are going to listen to the first five minutes again. Hand out the Student’s Notes to them and get them to fill in the missing words:
Some people wonder, ‘ How did Einstein think? How do we physicists think? Most of it is when we are quiet, all by ourselves, we stare out the window and have blocks of equations just wandering in our head. Until these equations fit together and then we get a sheet of paper and scribble.”

“It can be very frustrating at times, scribbling equations everywhere. The old cliché of scribbling on the back of the envelope often is true, because that’s sometimes all you have around.”

“He was always thinking in pictures, visualizing things. When his father gave him a compass he would just sit up night after night watching the needle point northward. It would send chills down his spine.”

Einstein once said, ‘I want to know God’s thoughts in a mathematical way.’

“Einstein wanted an equation, perhaps no more than one inch long that would encapsulate all physical laws, the beauty, the majesty, the power of the universe into a single equation. That was his life’s goal.”

In nineteen hundred, Albert Einstein is a 21 year old undergraduate at the Swiss Federal Polytechnic. That this young man will one day be synonymous with genius is something none of his professors would have predicted.

“He would cut class. The professors thought he was a goof off. As a consequence Einstein couldn’t get a single job after graduation. He even thought about switching fields and selling insurance. Can you imagine opening the door one day, and there’s Albert Einstein, selling you life insurance? What a waste! Einstein thought he was such a loser. He wrote a letter to his family saying that it would be better if perhaps he was never born. Nobody was talking about the young Albert Einstein.”

“He worked as a substitute teacher on short jobs in various towns, Einstein’s father had to apply on behalf of Einstein for academic positions. He wrote to a very famous professor and asked him whether he could use Einstein as a research assistant. But there were no positions available.”

“His father passes away, thinking that young Albert is a total disgrace to the family. “

In 1902, the depressed and despondent young Albert moves to Bern, Switzerland’s capital, and begins a career far from science.

“One of his friends arranges for Albert Einstein to get a position as lowly patent clerk in the Swiss patent office. In this office, on the third floor, Einstein spends six days a week reviewing applications submitted by all kinds of inventors to the Swiss government. Given a patent, he had all this information, and he had to strip it down to the essence.
And that honed his skills as a physicist. He would very quickly dash off all the patents that he had to analyze."

“He didn’t find the work very strenuous. It was not so intellectually demanding.”

And it would give him ample time to contemplate the universe.

He would never have been very good at a university, kissing up to a senior professor. He was much better on a stool in the patent office trying to daydream about what it is like to ride alongside a light beam.

From that job he would launch a revolution that would change world history.

Einstein’s idle daydreams will profoundly change the way that the universe is understood. In 1905, in what’s been called his Miracle Year, he publishes in his spare time, four visionary papers. The first of which answers the age old question, what is light?

D. Vocabulary

Here are the words from the Script that might be new for the students:

*equation, to scribble, to visualize, send a chill down somebody’s spine, encapsulate, synonymous, goof off, substitute, despondent, lowly, essence, to hone, dash off, strenuous, ample, contemplate, to launch, idle, profound*

Go through the words with the students, and get them to give you definitions, by working out what they mean from the context. Give them the correct definitions where necessary.

Write the words on flashcards and lie them face down on the table. Get the students to take turns picking up a word, and drawing it on the board for the other students to guess which word it is. Once the other students have guessed, the student who has done the drawing needs to ask a fellow student a question with their word.

E. Follow Up Discussion

1. What do you think classifies people as being a genius?
2. Who else would you consider to be a genius?
3. What other remarkable things have you heard of that people have done/can do?

F. Homework

The students can watch more of (or complete watching) the documentary on Einstein.
LISTENING

http://www.youtube.com/watch?v=2M7SQV7DVtS (this video clip is entitled ‘History Channel Albert Einstein (complete)’ and is one and a half hours long)

Some people wonder, ‘How did Einstein think? How do we physicists think? Most of it is when we are quiet, all by ourselves, we stare out the window and have blocks of _____________ just wandering in our head. Until these equations fit together and then we get a sheet of paper and ______________.’

“It can be very frustrating at times, scribbling equations everywhere. The old ______ of scribbling on the back of the envelope often is true, because that’s sometimes all you have around.”

“He was always thinking in pictures, ______________ things. When his father gave him a _____________ he would just sit up night after night watching the needle point northward. It would send __________________________________________________________________.”

Einstein once said, ‘I want to know God’s thoughts in a mathematical way.’

“Einstein wanted an equation, perhaps no more than one inch long that would ______________ all physical laws, the beauty, the majesty, the power of the universe into a single equation. That was his life’s goal.”

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“He would cut class. The professors thought he was a ______________. As a consequence Einstein couldn’t get a single job after graduation. He even thought about _______ fields and selling insurance. Can you imagine opening the door one day, and there’s Albert Einstein, selling you life insurance? What a waste! Einstein thought he was such a loser. He wrote a letter to his family saying that it would be better if perhaps he was never born. Nobody was talking about the young Albert Einstein.”

“He worked as a ______________ teacher on short jobs in various towns, Einstein’s father had to apply on behalf of Einstein for academic positions. He wrote to a very famous professor and asked him whether he could use Einstein as a research assistant. But there were no positions available.”

“His father ____________________, thinking that young Albert is a total disgrace to the family.”
In 1902, the depressed and ________________ young Albert moves to Bern, Switzerland’s capital, and begins a career far from science.

“One of his friends arranges for Albert Einstein to get a position as ________________ patent clerk in the Swiss patent office. In this office, on the third floor, Einstein spends six days a week reviewing applications submitted by all kinds of inventors to the Swiss government. Given a patent, he had all this information, and he had to strip it down to the ________________. And that ________________ his skills as a physicist. He would very quickly ________________ all the patents that he had to analyze.”

“He didn’t find the work very ________________. It was not so intellectually demanding.”

And it would give him ________________ time to ________________ the universe.

He would never have been very good at a university, kissing up to a senior professor. He was much better on a stool in the patent office trying to daydream about what it is like to ride alongside a ________________.

From that job he would ________________ a revolution that would change world history.

Einstein’s ______ daydreams will ________________ change the way that the universe is understood. In 1905, in what’s been called his Miracle Year, he publishes in his spare time, four visionary papers. The first of which answers the age old question, what is light?