How to use Bloom's Taxonomy in the classroom

Practical ideas and strategies to help put the Taxonomy of Educational Objectives to work in your classroom

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Introduction

Educational theories move in and out of fashion, with few having enough resonance to stick around for long. Bloom's Taxonomy of Educational Objectives is a notable exception to this rule.

Well over half a century since its publication in 1956, Bloom's framework for learning has been translated into 22 languages and, despite being revised by a new team in 2000, still forms the basis of school curricula and teaching standards the world over.

The Taxonomy was developed by a team of American educators led by Benjamin S. Bloom, for whom the purpose of education was "to change the thoughts, feelings and actions of students".

While acknowledging that simple acquisition of knowledge was useful for passing tests and exams, Bloom and his team suggested that students should also be taught to apply that knowledge along with higher-order thinking skills. This process was to be a more effective method for establishing meaningful lifelong learning.

Bloom's committee designed a hierarchical framework of learning statements based on the six major categories of cognitive thought, beginning with Knowledge and followed by: Comprehension, Application, Analysis, Synthesis and Evaluation.

This framework became known as Bloom's Taxonomy of Educational Objectives. Not only did it provide a common language for people to talk about progress and learning goals, it also offered an overview of the wide range of educational possibilities.

The purpose of this booklet is to demonstrate how Bloom's theories can be put into practice in the classroom. The focus is on practical ideas and activities which take the Taxonomy off the page and apply it to the realities of lesson planning, classroom questioning and differentiation.

We hope that teachers will find something here to complement the work that they are already doing to move learning forwards.

Section one – Lesson planning

Bloom's can be used to ensure progress and to encourage students to think in increasingly sophisticated ways. Here are eight ways that the taxonomy can be applied to lesson planning.

1. Mastery learning

In order to fully master a concept, students must be able to approach it using every stage of the taxonomy.

For example, to say that a student has mastered the poem *If* by Rudyard Kipling, they should be able to demonstrate that:

1. They know the poem, they have read it and can remember some or all of the lines.
2. They comprehend the poem, they understand the words and the overall meaning is intelligible to them.
3. They can apply the poem, they can make points or demonstrate an idea using direct examples from the text.
4. They can analyse the poem, they are able to explain how Kipling uses structural and linguistic techniques to achieve effects.
5. They can create things with or in connection to the poem, such as writing an additional stanza in keeping with Kipling's style.
6. They can evaluate the poem, they are able to comment on its quality and effectiveness as a piece of writing.

Mastery learning involves using increasingly sophisticated cognitive processes to accumulate understanding, until full appreciation of a concept is reached.

2. Overarching objectives

In addition to the aims of individual lessons, we will also have larger aims for what we hope students will be able to achieve as a result of a number of lessons. These might include being able to think reflectively, work independently and so on.

Bloom's Taxonomy can help us to achieve these goals. Let us say, for example, that we want to foster critical thinking. We could weave this into our teaching over the course of three or four months by working our way up the cognitive categories.

To begin, we would introduce students to the concept of critical thinking and ensure that they comprehend it. Next, we would ask them to start identifying where critical thinking could be applied to the topics that they study. This process would continue right up to evaluating examples of critical thinking.

The taxonomy acts as a simple framework for embedding overarching objectives over a lengthy period of time.

3. Lesson objectives

Objectives make the purpose of a lesson explicit to both teacher and student. Here is a range of ideas for using Bloom's taxonomy to reinvigorate lesson objectives:

1. Download 'The Bloom-buster', available at www.tes.co.uk/mikegershon. You can select keywords from the slides to help ensure that you are using a variety of operational words in your objectives.

2. Present students with three lesson objectives, each based on a different word connected to the taxonomy, and ask them to vote on which one they would most like to aim for in the lesson.

3. Rewrite your objective as a question. For example, a lesson objective such as, "To be able to assess the importance of photosynthesis in the lives of human beings" can become "How important is photosynthesis in the lives of human beings?" Not only does this make the purpose of the lesson more explicit to students, the question can also be used as a plenary or mini-plenary device by asking students how close they are to answering the question and what they need to do to find out more.

4. Using the relevant Bloom's keyword when you are talking to students is a good way to revisit learning objectives throughout the lesson. By making these words part of your classroom language and encouraging students to use them as well, you will help to ensure that the lesson stays on course.

5. Another option is to appoint a group of 'objective trackers'. These students have the task of keeping track of how closely the lesson is meeting the learning objective. They should be asked to report on their findings at several points during the lesson. You can even ask them to demonstrate what they can do relating to the objective.
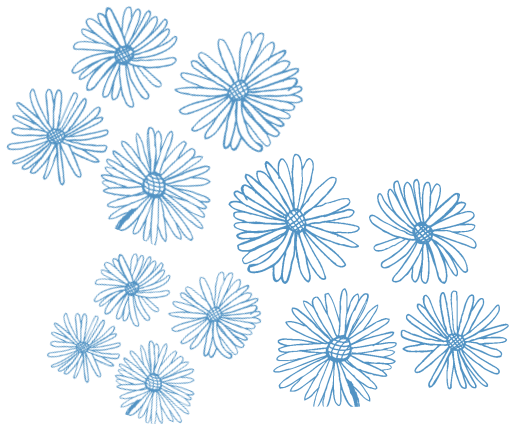
4. All/most/some

It is generally expected that teachers build differentiation into their lessons. This involves making sure that learning is accessible to all students so that every member of the class can make good progress.

One common method for differentiation is splitting up the lesson objective into three outcomes:

- **All** students will be able to…

- **Most** students will be able to…

- **Some** students will be able to…

While this approach makes the assumption that only certain pupils can achieve certain results, it does also require the teacher to think carefully about the different ability levels in their class.

Bloom's Taxonomy can be used to help make the most of all/most/some. One option is to connect each outcome with a different level of the taxonomy.

For example:

- **All** = apply

- **Most** = synthesise

- **Some** = evaluate

Alternatively, you can select a key word from one of the top two levels of the taxonomy and then modify this to create increasingly complex demands.

For example:

- **All** = evaluate

- **Most** = critically evaluate

- **Some** = critically evaluate with reference to evidence, examples and reasons.

A further benefit of using this approach is that you can link each statement to a particular level or grade and ask students to assess their own work in light of the statements you have provided.

5. Three-part lessons

Here is a simple technique through which to ensure your lessons progress up the taxonomy.

First, divide the taxonomy into the following three sections:

a. Knowledge and comprehension
b. Application and analysis
c. Synthesis and evaluation

Next, divide your lesson into three segments. Assign knowledge and comprehension to the first segment, application and analysis to the second segment and synthesis and evaluation to the third segment.

Finally, plan your activities around the different levels; you will be guiding your students from the most straightforward cognitive processes right up to the most challenging.

Here are example activities you can use for each section:

a)   Knowledge and comprehension

- List as many things to do with the topic as you can.
- Write a summary of all the things you already know about the topic.
- Explain to your partner what you already know about the topic.
- Read through the information and put it in your own words.

b)   Application and analysis

- Use what you know about the topic to explain the scenarios.
- Ask students to interpret a situation, text or event using their existing knowledge.
- Challenge pupils to break down some new information and to explain how it works.
- Give students a set of sources and ask them to analyse these.

c)   Synthesis and evaluation

Challenge students to weigh up the strengths and weaknesses of the information or ideas they have analysed.

- Ask pupils to write a report on the topic focusing on its good points and bad points.
- Invite students to develop a piece of creative writing based on what they have studied.
- Ask pupils to create a solution to a problem they have previously analysed.

6. Three-part activities

This technique mirrors the one described in the last entry, except that it focuses on individual activities rather than whole lessons.

The same method of division can be applied to individual activities within a lesson. Here are two examples of how this can work:

- Read through the three historical sources with your partner. First, identify when each source was written and by whom. Next, interpret as much information as you can about why each source was written and what the writer hoped to achieve. Finally, work with your partner to assess how reliable each source is.

- Think back to last lesson, when we researched different artistic movements. Make a list of as many movements as you can remember. Next, examine the image in front of you and identify which movement it represents. You should write a sentence explaining how you worked this out. Finally, create your own piece of art in the style of this movement.
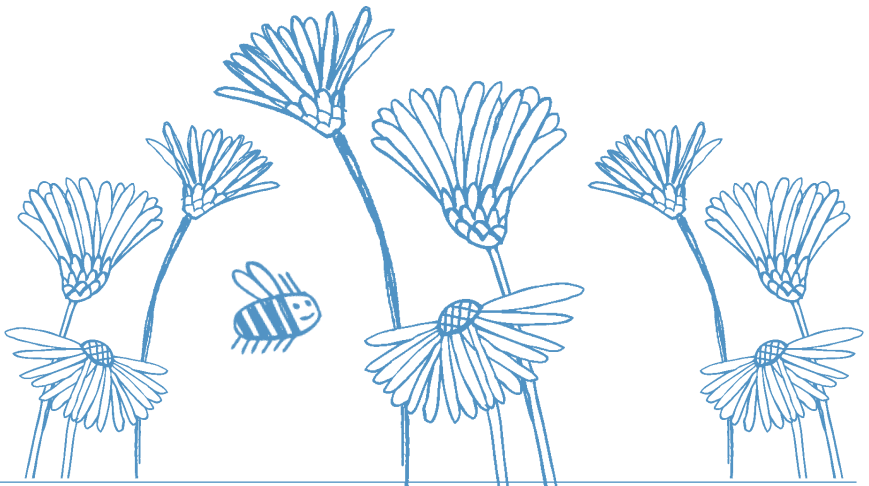
7. Task banks

Creating a task bank ensures that you have a ready supply of activities to dip into when planning your lessons. You could create a task bank for each level of the taxonomy to make sure that you can always devise the right sort of activity for the lesson you are planning.

You can use these example task banks as a starting point:

Knowledge:
- Arrange these items in order.
- Make a list of everything you know about the topic.
- Write a definition for each of the keywords.
- Describe what you can see.
- Match the word with the definition.
- Label the different parts of the diagram.
- Which of these words do you recognise?

Comprehension:
- Sort the ideas into different categories.
- Summarise the writer's argument.
- Explain your answers to the question.
- Explain why you think this happened.
- Identify the key points in the text.
- Identify three mistakes you have made and correct them.
- Report back to the group with your findings.

Application:
- Use what you have learnt to solve the problems.
- Suggest a way to deal with this scenario.
- Work with a partner to interpret the text.
- Perform a long pass.
- Take on the role of Henry VIII. What would he be thinking?

Analysis:
- What has the author used to create this effect?
- Compare and contrast the two items and produce a summary of their similarities and differences.
- Develop a set of criteria for distinguishing between a good and bad example of this.
- Research the topic with a partner.

Synthesis:
- Create a poster.
- Create an advertising campaign.
- Create a comic strip.
- Create a dramatic role-play.
- Construct an alternative.
- Plan a response.
- Devise a different way of using X.
- Propose a different approach.
- Propose a counter-argument.
- Merge the different ideas into a single solution.

Evaluation:
- What are the strengths and weaknesses?
- What limitations does X have?
- What judgements can you make about the argument?
- How would you improve X?
- Can you justify the decisions you have made?
- How would you rank the items given the criteria?
- What criticisms could you make?

8. Stretching more able students

To make lessons challenging for more able students, you can prepare extension activities that draw on the skills required by the top levels of Bloom's Taxonomy ahead of your lesson.

These can take the form of a set of activity cards, with a generic extension task or question written on each. When pupils finish their work, ask them to select a card at random and complete the activity on it.

Try some of the following examples of extension activities:

a. What are the strengths and weaknesses of the method we have used today?

b. What might the world have been like before people knew about this?

c. In what circumstances might this information become dangerous/useless?

d. Assess what you have done so far. What is good about it? What could be improved? Make the improvements.

e. Create a slogan and logo to represent the idea or concept that we have studied today.

f. Who would most benefit from what we have learned today and why?

g. How might this topic be used to change the world?

h. Write a rhyming poem based around something we have learnt so far.

i. Create dingbats for three keywords from the topic.

j. Develop an outline for a business which could make money from something connected to our learning.

k. Design a building or vehicle which somehow connects to our topic.

l. What are the limitations of the ideas or information we have been studying?

Section Two – Questioning

Not only does Bloom's provide a framework for assisting teachers in formulating questions, it helps students to become active participants in moving their learning forward.

1. Student questioning activity: Bloom's challenge

Towards the end of a lesson or a unit of work, introduce your class to Bloom's Taxonomy. Talk them through it in detail, giving examples to illustrate the various categories.

Next, divide the class into groups of three or four. Groups have five to 10 minutes to devise a series of questions that will test the knowledge and understanding of their peers, with two questions for each level of the taxonomy.

Once the questions are set, groups should pair up to test each other. You can introduce a competitive element here by having groups keep score. Alternatively, encourage groups to discuss the higher level questions in more detail by justifying the reasoning underpinning their answers.

2. Student questioning activity: Random Bloom's

For this activity, you will need three blank slips of paper for every student in your class and three small, empty tubs or boxes.

Introduce students to the taxonomy if you have not done so before. Assign categories to the boxes, like so:

- Box one: Knowledge and comprehension
- Box two: Application and analysis
- Box three: Synthesis and evaluation

You might also like to display a range of keywords connected to each category.

Ask students to write questions relating to the lesson topic on their slips of paper. They should devise one question for each box and then drop them into the appropriate one.

From this point, a range of options are open to you:

- Group students into teams. Each team tries to answer five questions from each box.

- Divide students into pairs. One person from each pair takes two questions from each box. They pose these to their partner before discussing the answers together.

- Using the principle of the Assessment For Learning technique of "exit passes," dismiss students at the end of the lesson one at a time by asking a question from the box of your choice. When they give you an answer, they may leave the room.

3.   Student questioning activity three: Discussing Bloom's

Begin by dividing the class into groups of four or five. Ask groups to elect a discussion leader. This person will be responsible for running the discussion and for asking the questions.

Introduce a topic and ask students to share what they already know about it. As this is going on, invite the discussion leaders to join you at the front of the room. You should have already covered Bloom's Taxonomy with the class prior to this.

Give the leaders a set of sample keywords and five or six exemplar questions for each taxonomy level. Leaders should use these materials to structure their group discussion and help it to progress up the taxonomy levels.

This is a challenging task, so the most able students should be selected to lead discussions. You should circulate the classroom during the activity and provide assistance as necessary.

Section Three – Evaluation and synthesis

The top two levels of Bloom's Taxonomy are the ideal starting points for developing complex activities that provide a high level of challenge.

1. Evaluation activity: Strengths and weaknesses

Present students with something you want them to assess, such as an argument, a painting or an essay. Working individually or in pairs, students should write a list of strengths and a list of weaknesses. They must provide examples from the material to support each strength or weakness that they identify.

Next, ask students to move around the classroom and share their list with three other people. During this process, they should:

- Ask their peers to justify the strengths and weaknesses they have come up with.

- Add any new strengths or weaknesses to their own lists.

- Identify the best argument that they hear and be prepared to explain why they think it is good.

When students have returned to their seats, lead a class discussion about the best arguments they have identified. This is important for encouraging students to verbalise the reasoning underpinning their judgements.

Finally, conclude the activity by asking students to write an extended piece weighing up the strengths and weaknesses of the material before reaching a conclusion about its overall quality.

You can make this activity harder by giving a caveat, that students must take account of when evaluating.

For example: Come up with three strengths and three weaknesses of the argument, given that it was first proposed in the late 19th century.

Alternatively, you can make the activity easier by giving pupils a set of categories and asking them to come up with a strength and weakness for each one.

For example: when evaluating a painting you should consider form, use of colour, use of shape, choice of materials and meaning.

2. Evaluation activity: Self- and peer-assessment

Set students an extended piece of work for which a mark scheme or set of success criteria exists.

Once the work has been completed, ask students to read through the mark scheme and highlight anything in it that is unclear or that they do not understand. Follow this up with a class discussion to address any uncertainties.

Next, ask pupils to assess their own work against the mark scheme. They should identify three strengths and one weakness, making a note of these on a separate sheet of paper and using information from the mark scheme to support their choices.

Now, invite students to pair up and swap work with their partner. The same assessment process should be repeated with the new piece of work.

Finally, pairs should share the assessments they have made. This should form the basis of a discussion in which pupils contrast the different judgements that have been made. You can use the following questions to underpin the discussion:

- What similarities were there between your self-assessment and your partner's peer-assessment?

- What were the differences?

- What was the overall view of your work?

3. Evaluation activity: Defend X

Divide the class into groups of six and number the students in each group from one to six.

Present a statement followed by six explanations. Students must identify the explanation that corresponds to their number and spend 30 seconds defending that explanation to the rest of the group. After each student has had a turn, there will be a two-minute free-for-all during which all group members can speak.

Here is an example:

**The economy is in bad shape because…**

- There is too much government interference

- Britain has long-term infrastructure problems

- The manufacturing base no longer exists

- We never joined the Euro

- People are not working hard enough

- There are too many bank holidays

As an alternative to this defence activity, you could try the following:

Students work in pairs. They are given five statements, ranging from received wisdom to highly contentious. Students have around 15 minutes to note down three arguments that could be used to defend each statement.

When time is up, invite pairs to join with another to form a group of four. Groups should share and discuss the ideas they have developed.

Conclude this activity by asking students to write a speech defending one of the statements, challenging them to choose the one that they believe will be hardest to defend.
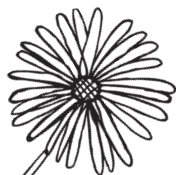
4. Synthesis activity: Advertising campaign

As the final activity in a lesson, ask students to create an advertising campaign to "sell" what they have learnt.

Students can work in groups of three or four and should have between 20 minutes and half an hour to complete this task. It is a good idea to let pupils know at five-minute intervals how long they have left. This ensures that students move through the activity with enough time left at the end of the lesson to present their work.

You may want to suggest that students include three of the following items in their campaign:

- Newspaper advert
- Magazine advert
- Television advert
- Radio advert
- Billboard
- Poster for inside school
- Webpage

Ask groups to select which three items they will focus on and then to divide the work up among themselves. Explain that the purpose of the activity is for students to create adverts that are attention-grabbing, but also convey the key information of the lesson.

When the time is up you can either select two or three groups to present their campaigns to the whole class, or you can invite groups to pair up and present their campaigns to each other.

Peer-assessment can be used to draw proceedings to a close.

5. Synthesis activity: Design brief

Present pupils with a design task of some sort. This can be absolutely anything.

Examples include:
- Design an experiment to test the levels of friction of different materials.
- Create a human model of one of the concepts we have thought about this lesson.
- Construct a dramatic role-play to suggest what you think might have happened after Oliver Cromwell's success.

You should also provide a set of criteria that must be met. Taking our third example from above, the criteria we might set could be:

- Include at least three different people who we have studied.
- Include at least one voiceover that offers insight into Cromwell's thinking.
- Use at least one prop.

Ask students to get into pairs or small groups and set an appropriate time limit for the activity.

You can conclude by having students present their work to the whole class or to another group for peer-assessment.

6. Synthesis activity: Extended writing

Creative writing does not have to be limited to English lessons. Here are some examples of original writing tasks that can be used in different subjects:

- Diary entry

- Story

- Biography

- Newspaper article

- Magazine article

- Content for the front page of a website

- Extended poem

- Play script, or a single act of a play

- Dramatic monologue

- Voiceover for a television documentary

And here are some ideas of how to use these outside of English lessons:

- Write a set of diary entries based on what you know about Alexander Fleming's discovery of penicillin.

- Write a story about the benefits of working together in a team sport.

- Write a biography of Pierre Fermat that focuses on his contributions to mathematics.

- Write a newspaper article about the importance of art in public spaces.

- Write a dramatic monologue exploring the conflicting desires of a sociological researcher who is uncertain as to whether they should engage in unethical research.