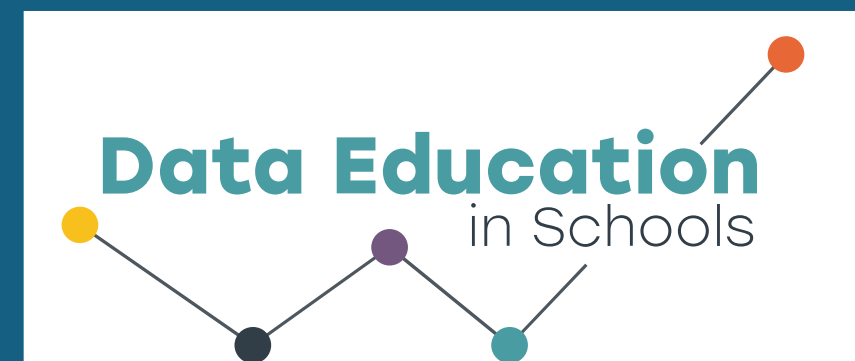
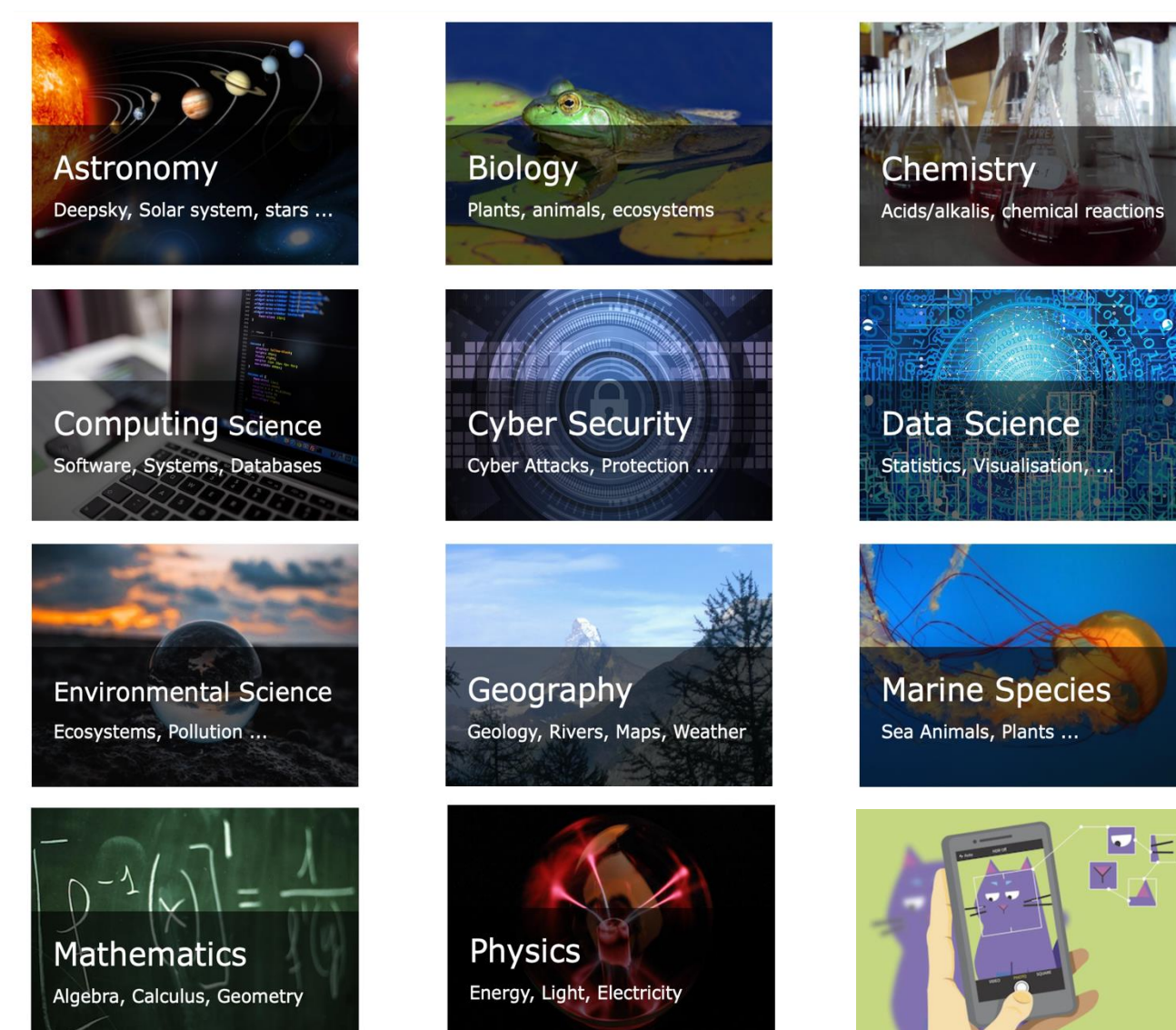




ABOUT THE AI BSL PROJECT

As AI becomes increasingly embedded in everyday life, access to clear terminology, education and information is essential for full participation in digital society. Yet Deaf people often face significant barriers to accessing information and education (Camern et al, 2017, Cohen, 2024), and British Sign Language (BSL) currently lacks standardised signs for many key AI concepts, making it harder to engage with this rapidly evolving field.

The BSL Glossary team, based at the Scottish Sensory Centre (SSC) at the University of Edinburgh, has been addressing terminology gaps in BSL since 2007, developing nearly 4,500 STEM signs through its BSL Glossary project – a freely accessible resource used across deaf education, careers and community. This includes 500 signs spanning computing, cyber security and data science, which provided the foundation for the new BSL AI glossary.



Subtopics

Foundations of AI	Types of Learning
Types of Models & Architectures	Data
How Models Work	Language & Communication
Computer Perception	Classification & Search
Recommendation Systems	Ethics, Bias & Safety
Trust & Reliability	Risks & Harms
AI & Society	Technical Infrastructure



Building on this work, the Royal Society-funded project has developed **100 new signs for AI-related terms**, available online as a bilingual resource with video definitions and written English translations. The project team brings together Deaf computer scientists, data scientists, educators and sign linguists — all BSL users.

METHODOLOGY

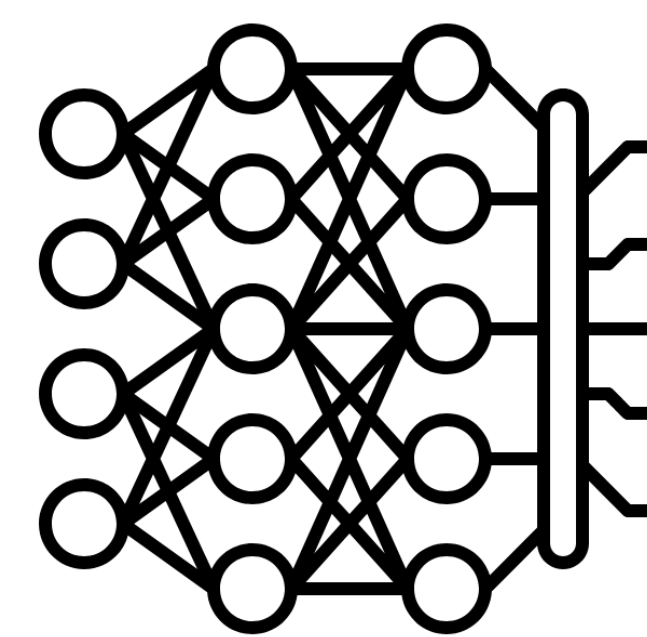
Signs were developed through a rigorous, community-informed process (Quinn et al, 2021, Cameron, 2025):

- **AI terms** were collected from school curricula.
- **Conceptually-driven signs** – visual representations of the underlying idea, not literal translations of English terms.
- **Family of signs** – interconnected signs sharing morphological features, helping users understand related concepts together
- **Structured group discussion** – focusing on visually capturing the concept, not the written English word
- **Filmed, reviewed and published** – signs agreed by the BSL glossary team before release

TYPES OF AI MODEL

An AI model is a system trained on data to carry out intelligent tasks. Different types of model are built for different purposes – and in BSL, each sign is signed by modifying a shared base sign.

How do different AI models work — and how do we sign them in BSL? Using a familiar example – a cat photograph, a short caption, and a question – we show five model types in action. Scan the QR codes to see the signs.



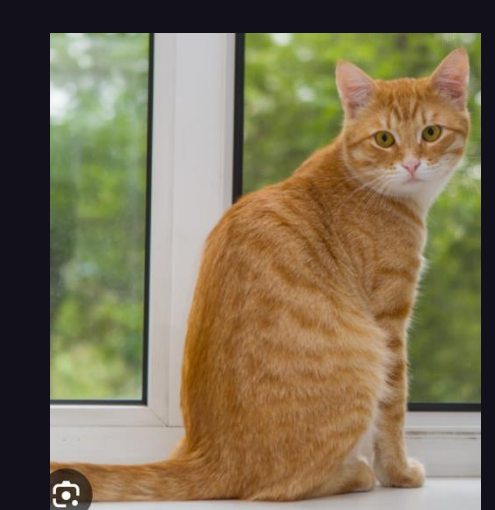
Created by Fahmi Hidayat from Neuron Project



In the MODEL sign, the handshape and wriggling fingers movement iconically represent the links between the circles in an AI model diagram.



A photo of a tabby cat on a windowsill — caption: "Cats sit near windows to watch birds." Answer summarised briefly. Then: "Will the cat move in 10 seconds?"



Diffusion creates this

Prediction model forecasts this

LLM reads caption

SLM summarises

How the sign family works

Base sign — the shared foundation for all five signs

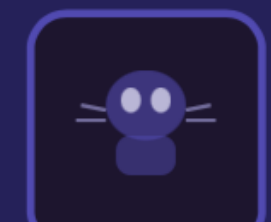
- model → Base sign
- +diffuse → Diffusion model
- +predict → Prediction model
- +large → Large Language Model
- +small → Small Language Model
- +reason → Reasoning model (how it thinks)

CONCLUSION

This project demonstrates that community-led, conceptually driven sign development can produce a coherent, scalable BSL resource for rapidly evolving technical domains. By grounding signs in morphological families rather than English translations, the glossary supports deeper conceptual understanding alongside linguistic accessibility. As AI continues to reshape education, employment and public life, resources of this kind are essential for ensuring Deaf communities are not excluded from the conversations — and decisions — that affect them. Future work will evaluate the glossary's impact on AI literacy among BSL users.

REFERENCES

- Scottish Sensory Centre, University of Edinburgh. (2024) 'Artificial Intelligence Glossary' In *British Sign Language glossaries of curriculum terms*. Available at: <https://www.ssc.education.ed.ac.uk/BSL/aihome.html> (Accessed: 23.05.26)
- Cameron, A. (2025). From Scientific Concepts to Signs – Leveraging STEM Glossaries in Deaf Education. In Unterhitzberger, G., Nordheimer, S., Peters, C., Schmidt, F., Schuler, L., Bumann, S. & Rathmann, C. (eds.), *STEMSiL Handbook: Research in STEM Teaching and Learning in Sign Languages* (pp. 1–27). STEMSiL. https://stemsil.eu/wp-content/uploads/2025/06/STEMSiL_Handbook_full_chapters_EN.pdf
- Cameron, A., O'Neill, R. and Quinn, G. (2017) 'Deaf Students Using Sign Language in Mainstream Science Classrooms'. In A.W. Oliveira, M.H. Weinburgh (Eds.) *Science Teacher Preparation in Content-Based Second Language Acquisition Series: ASTE Series in Science Education*, Springer, Ch. 19, p341-360. DOI:10.1007/978-3-319-43516-9.
- Cohen, S. (2024) Using a Language Community to Unlock the Abstractness of Signed Language, *The Journal of Deaf Studies and Deaf Education*, v29(2), p 282-283.
- Quinn, G., Cameron, A., and O'Neill, R. (2021). 'Signing the times: Enforced oralism in deaf education has left BSL lacking signs for specialist concepts.' in NEWSLi (115), pp27-31.



Base sign: Model
All five signs below modify this base — demonstrating BSL sign families
modified for each type below ↓



Base sign



Diffusion model – generates images from text – starts with random noise and removes it step by step, guided by a prompt.
e.g. "Tabby cat on windowsill" → creates the photograph from noise.



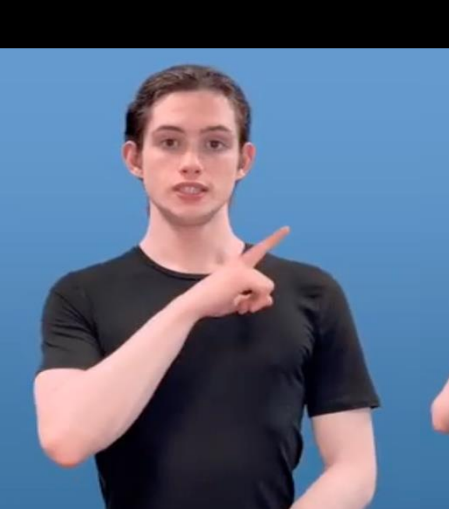
Prediction model – uses patterns in data to forecast what will happen next – trained on past events to make predication
e.g. "Will the cat move in 10 seconds?" → uses past behaviour to forecast what happens next.



Large Language Model (LLM) – reads and generates text, trained on billions of words.
e.g. Reads the caption – understands the meaning, answers questions about it.



Small Language Model (SLM) – same as LLM but smaller, faster, far less power. Runs on a phone.
e.g. Caption in → "A cat sits by a window watching birds."



How it thinks – not what it is: Reasoning describes behaviour – it can apply to any model above. **Reasoning model** thinks step by step before answering – checks its own logic, like showing working in maths. Slower but more accurate on complex problems

