Achievement Standard

Subject Reference	Statistics and Modelling 3.6				
Title	Use probability distribution models to solve straightforward problems				
Level	3	**Credits**	4	**Assessment**	External
Subfield	Statistics and Probability				
Domain	Probability				
Registration date	9 November 2005	**Date version published**	9 November 2005		

This achievement standard involves using probability distribution models to solve straightforward problems.

	Achievement Criteria	**Explanatory Notes**
Achievement	• Use probability distribution models to solve straightforward problems.	• Distributions will include a selection from: – binomial – Poisson – normal.
Achievement with Merit	• Use probability distribution models to solve problems.	• Problems may include: – sum of two normally distributed independent variables – inverse normal problems – calculation of sample statistics to estimate the corresponding population parameters, eg using sample data to estimate π for a binomial distribution or λ for a Poisson distribution – continuity correction where appropriate – combined events for Poisson, normal or binomial distributions.
Achievement with	• Use and justify probability distribution models to solve complex problems.	• Problems may include: – inverse Poisson – linear combinations of normally distributed independent variables eg $aX + bY$ and $X_1 + X_2 + X_3 + X_4 ..... + X_n$ – selecting and justifying the use of a model.

General Explanatory Notes

1 This achievement standard is derived from *Mathematics in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1992:
- achievement objective pp. 198, 206
- suggested learning experiences pp. 199, 207
- sample assessment activities pp. 200–201, 208–209
- mathematical processes pp. 23–29.

2 The use of appropriate technology is expected.

Quality Assurance

1 Providers and Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against achievement standards.

2 Accredited providers and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Accreditation and Moderation Action Plan (AMAP) reference 0226